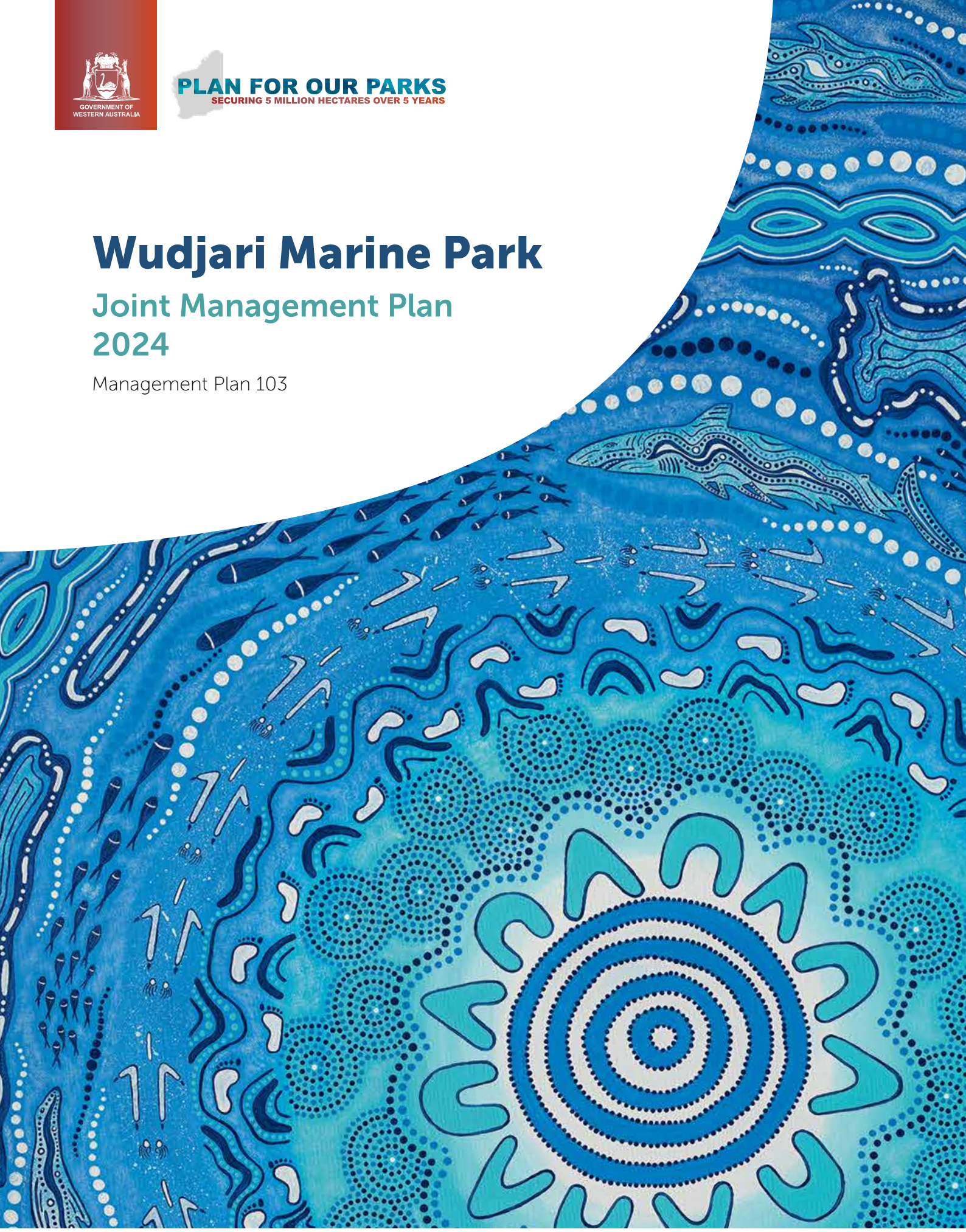
GOVERNMENT OF WESTERN AUSTRALIA

PLAN FOR OUR PARKS
SECURING 5 MILLION HECTARES OVER 5 YEARS

Wudjari Marine Park

Joint Management Plan 2024

Management Plan 103



GOVERNMENT OF WESTERN AUSTRALIA

Conservation and Parks Commission
Department of **Biodiversity, Conservation and Attractions**

Esperance Tjaltjraak
Native Title Aboriginal Corporation

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November 2024

This joint management plan was prepared by the Conservation and Parks Commission through the agency of the Department of Biodiversity, Conservation and Attractions (DBCA) in consultation with Wudjari Traditional Owners.

Warning: This plan shows photographs of Aboriginal people who may have passed away.

NB: The spelling of some of the traditional language words for Country and species of plants and animals may vary.

The recommended reference for this publication is:
Department of Biodiversity, Conservation and Attractions (2024) *Wudjari Marine Park joint management plan 2024* (Management plan 103). Department of Biodiversity, Conservation and Attractions, Perth, Western Australia

Cover and internal artwork.
Entitled Our Country - Kepa Kurl Nyungar Boodja, is a journey of 'Sea Country - Wadarn Boodja', the exquisitely beautiful, coastline, sky, oceanic islands (kubitj), water holes and the myriad life forms connected to these. Sea creatures, human and animal tracks and stars are all part of this energetic, painterly artwork, underlain with symbolism and meaning.

The artwork was developed, designed, and created by Jennell Reynolds, with special motifs provided by Aunty Donna Beach and Hayleigh Graham. The work is presented here to provide a design element to this Plan, but we always acknowledge there are multiple voices and families of Wudjari Wadarn Boodja, and so we respectfully acknowledge our community: the Boxer-Rogers Family; The Dabb Family; the Yorkshire and Knapp Family; The Reynolds Family; the Tucker Family; and the Bullen Family - and of course our connected kin here, far, and wide, as we all come together for the development of our own Wudjari Sea Country Plan in years to come.

This document is available in alternative formats on request.

Kaya Wanju, Kepa Kurl Wudjari Wadarn Boodja.

We are custodians of the Wudjari nation.

We are saltwater people connected to the lands and waters by our spirits and ancestors.

We welcome you to Esperance Tjaltjraak Native Title Aboriginal Corporation, where our rangers and office staff work together to keep our land and Sea Country healthy.

This plan is part of our continuous journey, a new chapter, working with our joint management team at DBCA, our partners, and our wider community, and supporting our Sea Country rangers; together we are taking a leadership role in the research and management of Wudjari Marine Park.

In the footsteps of our ancestors....

Tjaltjraak: Pronounced ‘dul-u-rak’, this is the Wudjari name of the local blue gum tree; it means ‘glow in the dark’. Tjaltjraak is a culturally significant species of eucalypt, the geographic distribution of which roughly aligns with the boundaries of Kepa Kurl Nyungar Country.

Wudjari: We represent the Wudjari (pronounced ‘wood-jah-ree’) language group, located at the eastern edge of the Nyungar nation.

Kepa Kurl: Kepa Kurl (pronounced ‘kep-pa kurl’) is the Wudjari name for ‘Esperance’. ‘Kepa’ translates to water and ‘Kurl’ to boomerang. Kepa Kurl means ‘where the waters lie like boomerangs’ and refers to the shape of the two bays closest to the Esperance townsite.

Kepa Kurl Wudjari people have a distinct identity as acknowledged by our separate native title determination. In some ways, Wudjari Nyungars occupy a unique cultural and geographic frontier between the south-western Nyungar cultural bloc and the Western Desert bloc to our north and east, sharing some history with both groups but maintaining our own distinct identity.

Esperance Tjaltjraak Native Title Aboriginal Corporation (ETNTAC) is a community-controlled organisation governed by a board of 12 intergenerational Traditional Owners elected by our membership. Inclusivity and gender-balance enables our development, as our board comprises a male and female representative from each family group. We respect the lore and wisdom of our old people. A circle of Elders, comprising individuals nominated by each family, guide the board and the organisation in culture and heritage matters.

Sea Country mob. Courtesy of ETNTAC

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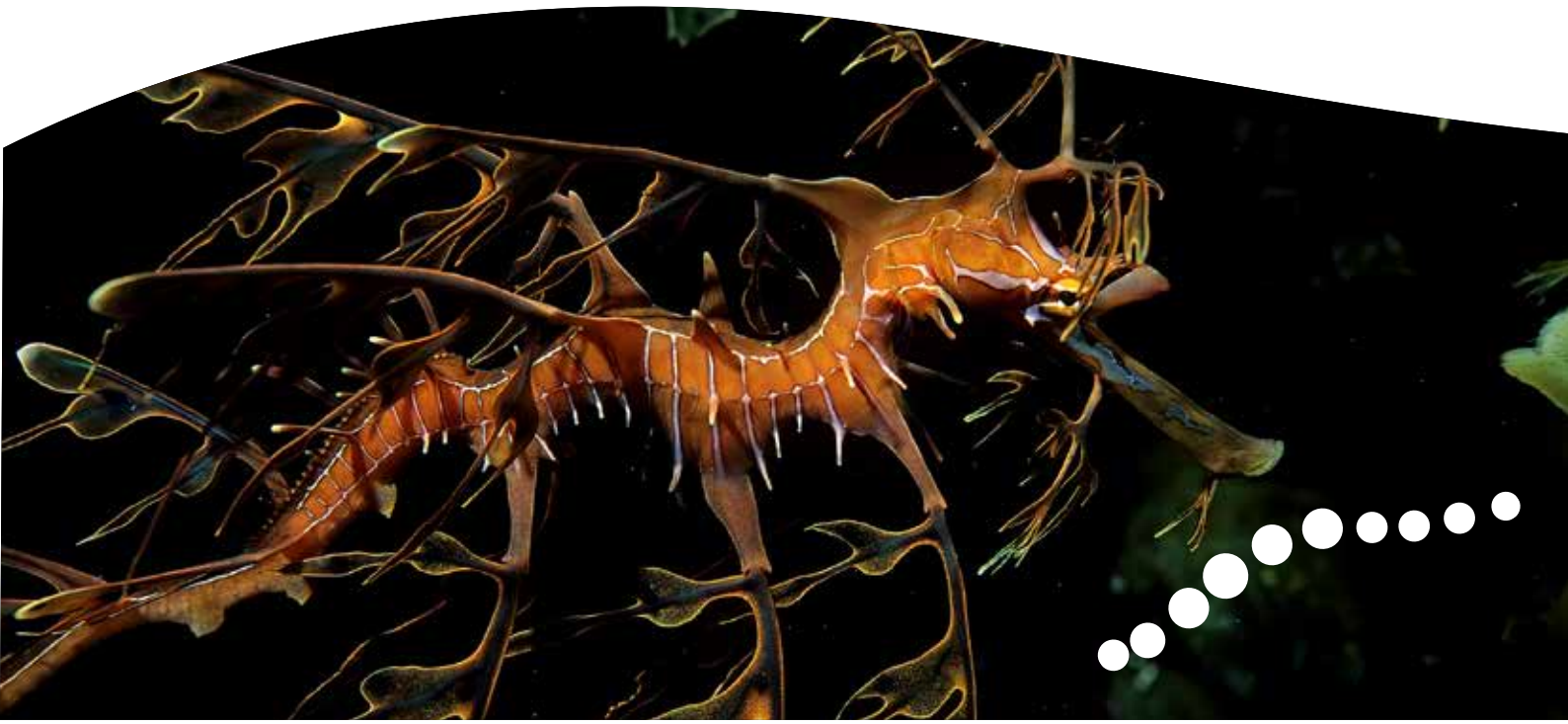


Leafy seadragon. Courtesy of Peter Nicholas

Acknowledgments

The Department of Biodiversity, Conservation and Attractions (DBCA) and the Esperance Tjaltjraak Native Title Aboriginal Corporation (ETNTAC) were greatly assisted in the preparation of the management plan by the considerable time and effort put into discussion and meetings by the Community Reference Committee (CRC) for the Wudjari Marine Park.

Many groups and individuals provided valuable input to the CRC through Sector Advisory Groups, out-of-session discussions and individual submissions.

During the course of reserve planning, staff from various agencies including the Department of Primary Industries and Regional Development (DPIRD); Department of Energy, Mines, Industry Regulation and Safety (DEMIRS); and local governments, also provided valuable information and guidance relating to their areas of responsibility.

Sunrise over West Beach. Courtesy of Genevieve Carey

1. Introduction

"Our people, the Wudjari people, follow the six seasons. We observe our surroundings and learn from our Country, its plants and animals. Our land and sea tell us where to be on Country at different times of the year."
Wudjari Elder

The Wudjari Marine Park is located on the South Coast of Western Australia from Jerdacuttup (Mason Bay) in the west to Euradup (Point Malcolm) in the east (Map 1). It falls within and seaward of the boundaries of the Esperance Nyungar's determined native title area which is managed by ETNTAC as the lead body for the Wudjari people, and with an aim to empower members to build stable, purposeful, culturally connected lives.

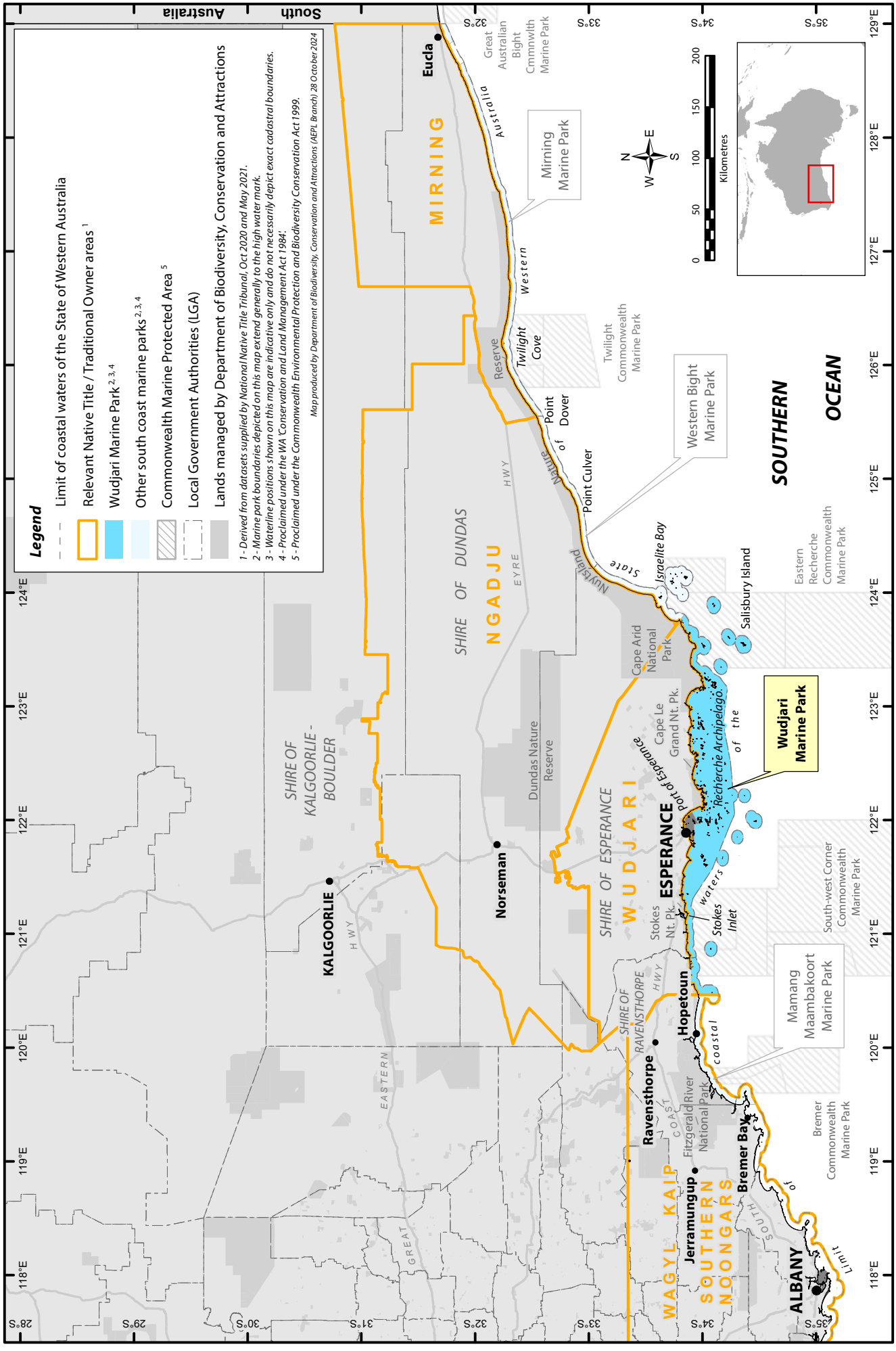
The marine park encompasses Wudjari Wadarn (sea) boodja (Country) centred on Kepa Kurl (place where the water lies like a boomerang) and segments of the cultural complexes and cultural landscapes of Wudjari. It contains a diverse array of marine habitats and communities, including seagrass, macroalgae and reef communities, as well as ecologically important foraging and breeding areas for a variety of threatened species. Southern right whales use the sheltered bays for breeding and calving between June and November each year and Australian sea lions and long-nosed fur seals breed and forage in the area.

The area is also highly regarded for its social and economic values. Commercial fishing has been undertaken in the area for generations, providing livelihoods and supplying fresh fish for local communities. Recreational fishing, both from the shore and on the water, is also highly valued. Visitation to the marine park is limited to the adventurous, as road access and amenities along the coast are limited.

The marine park will contribute to the conservation and enhancement of the outstanding cultural and ecological values of Wudjari Sea Country. It will allow for multiple uses in recognition of the exceptional conservation status, economic value, and potential of the area. It aims to find a balance between protecting the unique cultural and environmental values whilst supporting recreational and commercial uses for the benefit of present and future generations, as development and visitation to the area grows.

The marine park will be jointly managed with the ETNTAC through a joint management body (JMB). The joint management arrangements will make this the first formal jointly managed reserve with the Wudjari people. The intertidal and estuarine portions of the marine park will also be jointly vested with the ETNTAC and Conservation and Parks Commission (CPC).

The establishment of the marine park was part of the Plan for Our Parks initiative to create five million hectares of new national and marine reserves across Western Australia. The marine park will add a further 801,350 hectares (approximately) to Western Australia's marine reserve system and will contribute to the National Representative System of Marine Protected Areas.



Map 1 – Locality of Wudjari Marine Park (including native title boundaries)

2. The management plan

2.1 Purpose of the plan

This joint management plan details how the Wudjari Marine Park will be jointly managed by the Wudjari people as represented by ETNTAC, and DBCA to preserve, study, manage and promote culture and heritage, enhance nature conservation, and allow for ongoing sustainable recreational and commercial use.

The main outcomes of the joint management plan are listed below.

- The establishment of the marine park as a Class A reserve over the State waters of the Wadarn Boodja (Wudjari Sea Country) up to the high-water mark.
- The establishment of a JMB for the purposes of section 56A of the *Conservation and Land Management Act 1984* (CALM Act).
- The establishment of a joint management framework for the marine park between DBCA and ETNTAC in accordance with the requirements of a Section 56A joint management agreement (JMA) under the CALM Act for Wudjari Conservation Estate.
- Promotion and support for the continued exercise of Wudjari peoples' native title rights recognising their ongoing connection to, and responsibility for Wadarn Boodja.
- Preservation of Wudjari culture and heritage values of the marine park.
- The establishment of a framework to allow for ongoing sustainable multiple use.
- Promotion and support to build the capacity of Wudjari people and ETNTAC to progressively take on greater responsibility and accountability for management of the marine park.
- A conservation framework built on collaboration between western and cultural science, under a cultural governance structure, to ensure the conservation of ecological and cultural components and processes of Sea Country, and to appropriately manage existing and future pressures to its values.
- The establishment of seven management programs (management framework, education and interpretation, public participation, patrol and enforcement, management intervention and visitor services, research, and monitoring) with prioritised strategies to help achieve management objectives for the marine park.
- Contribution to the fulfilment, support and promotion of Australia's responsibilities under several international conventions such as the Convention on Biological Diversity, the International Union for the Conservation of Nature's Protected Areas Program and the United Nations Declaration on the Rights of Indigenous Peoples.
- Contribution to the National Representative System of Marine Protected Areas.
- The continuation and enhancement of cultural, recreational and commercial uses for the benefit and enjoyment of Wudjari people, the community and visitors.

2.2 Development of the plan

This joint management plan has been prepared by representative Wudjari people, engaged via the ETNTAC, and DBCA, in consultation with DPIRD, the South Coast community and stakeholders through a ministerial appointed Community Reference Committee and sector advisory groups.

Many Wudjari people have contributed to this plan by sharing knowledge, developing management documents and strategies, engaging with stakeholders and the broader community, and generously giving their time. Decision making for the management arrangements in this plan has been underpinned by traditional knowledge and values, in conjunction with the latest research on the area, information from the Tjaltjraak Healthy Country program, and information from the community and stakeholders.

This joint management plan has been prepared in conjunction with the joint management plans for Mamang Maambakoort and Mirning marine parks, and the management plan for the Western Bight Marine Park, to ensure consistency and complementarity of management arrangements across the neighbouring marine parks.

This joint management plan sets a vision for the area and describes some aspects of Wudjari Wadarn Boodja that are important to Wudjari people and the wider community to manage. These are referred to throughout this document as values. The plan identifies the healthy land and Sea Country themes as well as key ecological and cultural values and the current and potential pressures acting on them. This plan acknowledges that cultural values, ecological values and socio-economic values are interconnected and interdependent. It provides strategic direction through objectives and applies seven management programs to be implemented through management strategies. The key components of the management framework are shown in Figure 1.

2.3 Structure of the plan

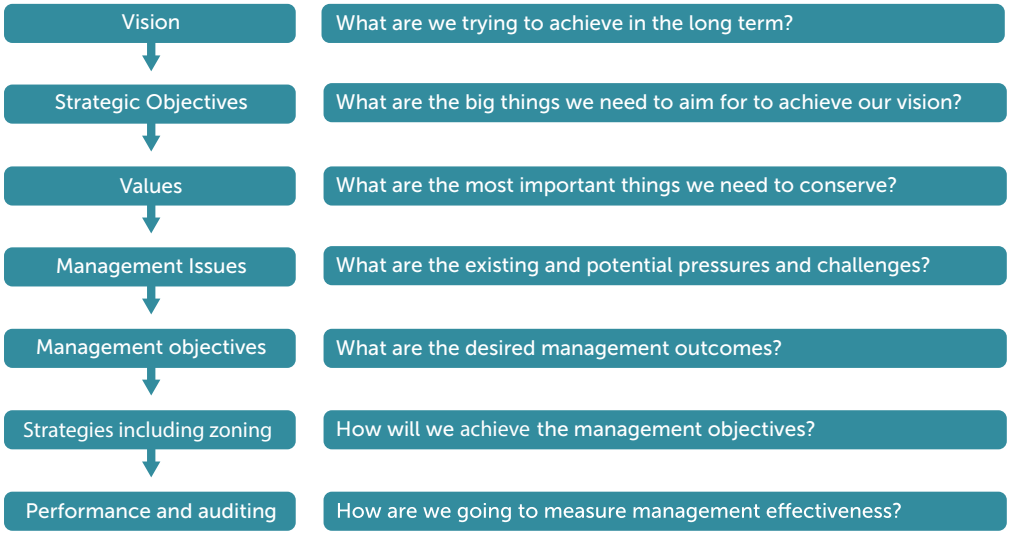


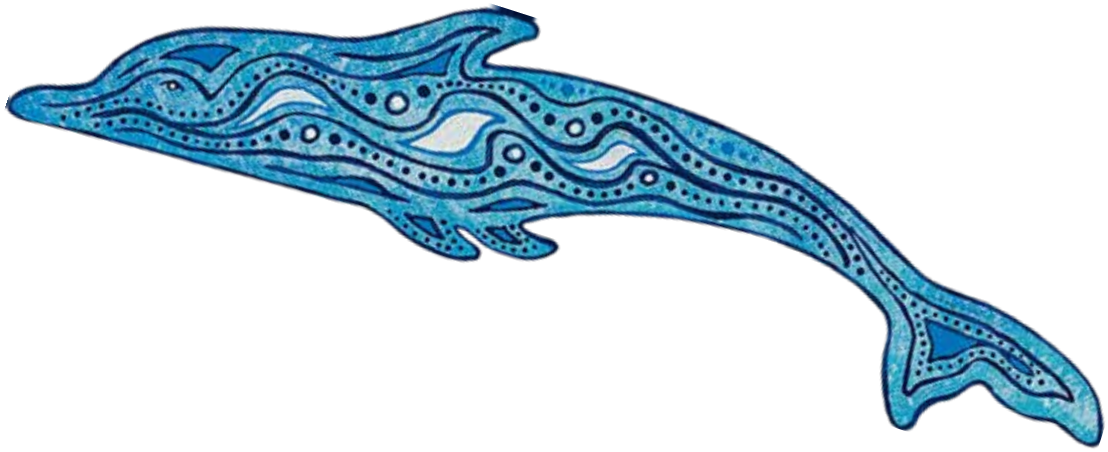
Figure 1 Structure of the plan

This joint management plan will guide management of the marine park for 10 years, or until a new joint management plan is prepared under the CALM Act. Any amendments required during the life of the plan require a statutory public comment period and approvals from the Minister for Environment, Minister for Fisheries and Minister for Mines and Petroleum.

The DBCA Esperance district and ETNTAC joint management partners, through the JMB, have the primary responsibility for coordinating and implementing the management of the marine park.

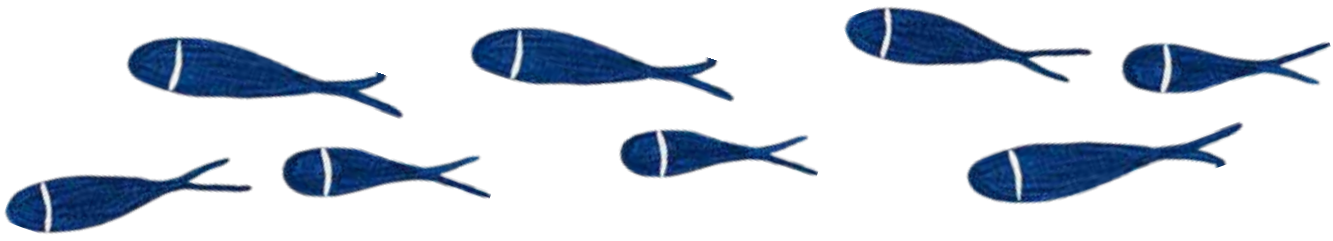
As the lead agency for the management of the State's fish and aquatic resources, DPIRD is responsible for leading, coordinating and undertaking management strategies relating to these.

In the case of overlapping or bordering management responsibilities, or mutual interests with other departments or organisations, collaborative operational plans and memoranda of understanding will be developed to ensure efficient and effective delivery of management arrangements.



The key terms used in the management summary tables in this plan are defined below.

Terminology	Description
Vision	The long-term aspiration for the marine park.
Strategic objectives	The broad direction required to achieve the vision.
Values	The cultural, ecological, and socio-economic features and activities which are important to the area.
Pressures	Anything which affects or has the potential to affect the condition of a value. Pressures can be anthropogenic or natural.
Management objectives	Identify what the primary aims of management will be.
Management strategies	Provide direction on how the management objectives will be achieved. The prioritisation of the management strategies is based on the best available information and may change during the life of the plan.
Management programs	The seven categories across which management occurs (management frameworks, education and interpretation, public participation, patrol and enforcement, management intervention and visitor services, research and monitoring). This ensures a coordinated and prioritised approach is taken to implement strategies. The management programs are consistent across all marine parks in the State and are the basis for budgeting and annual reporting.
Key performance indicators (KPIs)	Assigned to key values to measure overall management effectiveness. These key values reflect the highest conservation and management priorities and form an important part of the audit process (see section 10). Each KPI has three components: performance measures, targets and reporting requirements.
Performance measures	Performance measures are indicators of management effectiveness in achieving the marine park's objectives and targets.
Management targets	The long-term targets provide specific benchmarks to assess the success or otherwise of management strategies within the life of the plan. For the purposes of this management plan, 'significant change' refers to a statistically significant change beyond the limits of natural variability. Specific limits for each ecological value will be determined as long-term monitoring datasets further develop.
Monitoring	Monitoring will be carried out to assess the condition of values in the marine park, with the most significant values being prioritised for monitoring. If the condition of a value has significantly decreased as a result of human activities in the area, adaptive management will be carried out.
Responsibilities	DBCA is the lead for all strategies. Where other organisations are required to support implementation of a management strategy, their name is listed in brackets next to the strategy. When an agency is listed as a support the agency will be engaged, with the level of involvement to be determined once the project is in development. Where an agency or body is required to take a lead role in strategy implementation, their name (or acronym) is in bold.



2.4 Vision

The vision statement represents the aspirations for the conservation and protection of the cultural and ecological values and sustainable use of the marine park and will provide guidance for ongoing management. The vision is:

"Working together to care for our shared coastal and marine environment in ways that preserve, enhance, protect and celebrate all cultural, ecological and community values, and our shared knowledge, history and heritage, for our families and future generations".

2.5 Strategic objectives

The strategic objectives of this plan support the goals of the Wudjari people and the broader South Coast community and provide more specific direction for the long-term realisation of the vision for the marine park.

Caring for Wadarn Boodja (custodial obligations and cultural-ecological values)

Enhance, maintain and conserve a healthy Sea Country, including marine biodiversity and ecological integrity.

People and Wadarn Boodja (community and socio-economic values)

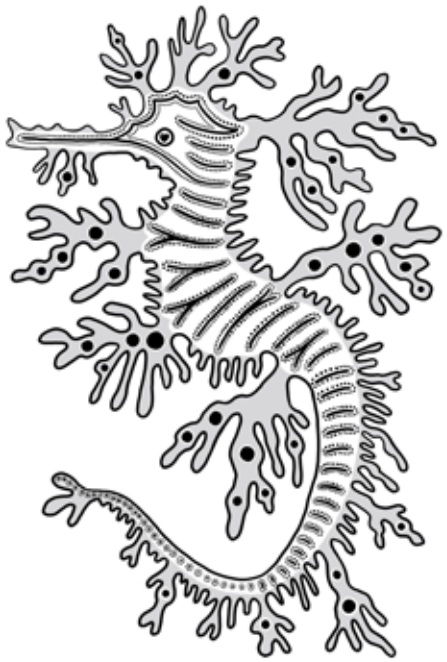
Provide equitable and sustainable opportunities for recreational and commercial activities by allowing communities to safely utilise the marine environment as a source of income, food and enjoyment.

Understanding Wadarn Boodja (cultural leadership in research and monitoring)

Encourage and promote research and monitoring and the sharing of knowledge from Traditional Owners, scientists and local community to guide and inform best-practice management.

Connection to Wadarn Boodja (cultural heritage and identity)

Protect and conserve the values and heritage of the Wudjari People in relation to the marine park.



3. Management setting

3.1 Definition of area and tenure

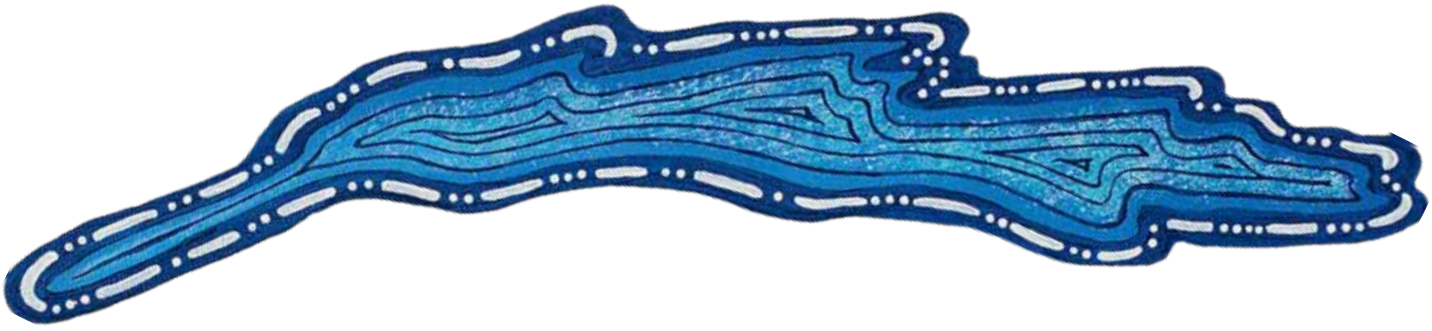
Lying in the Integrated Marine and Coastal Regionalisation of Australia (IMCRA) South Coast Mesoscale Bioregion, the Wudjari Marine Park is located in the Great Southern region of Western Australia. It covers approximately 801,350 hectares adjacent to the Shire of Ravensthorpe and the Shire of Esperance.

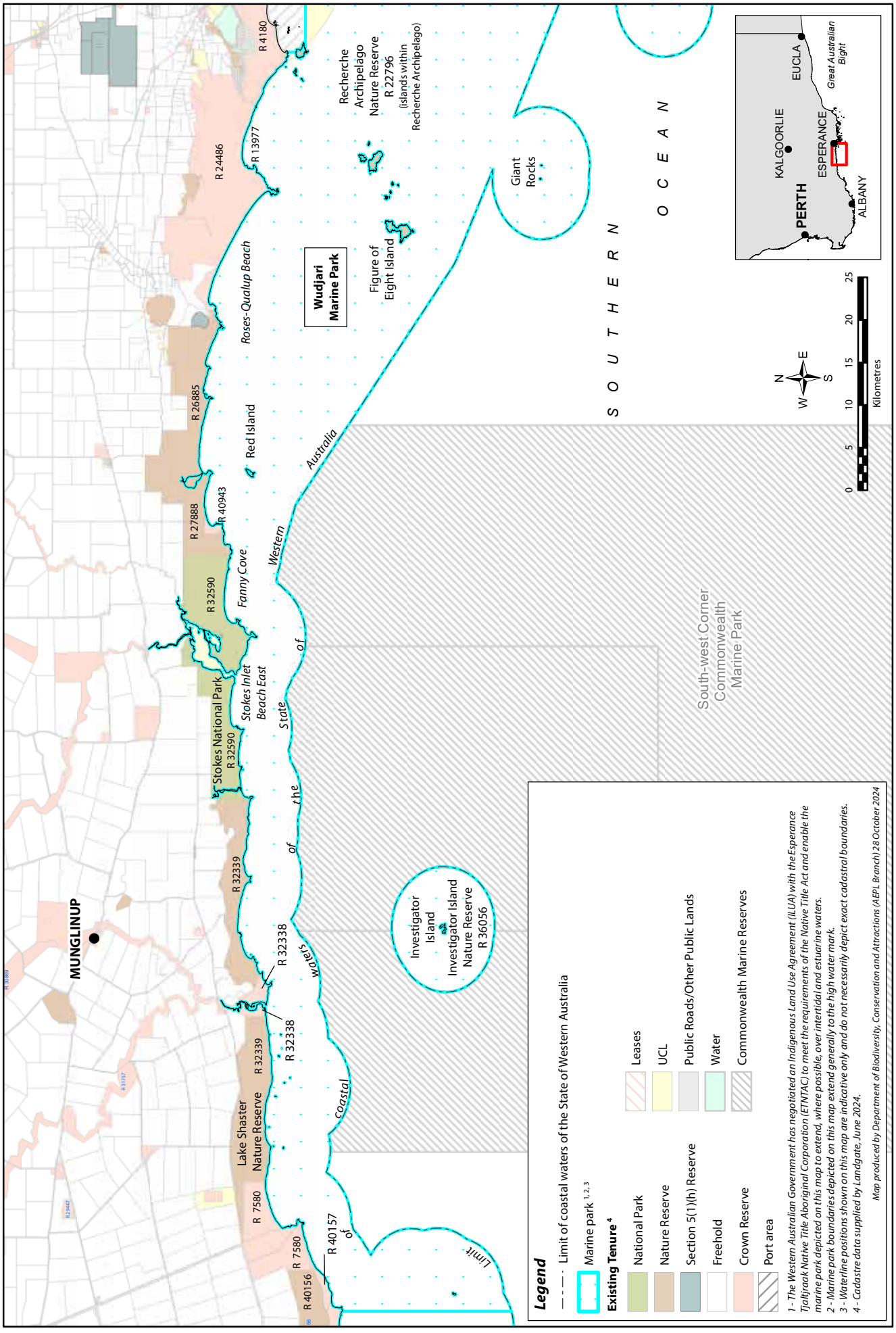
The western boundary of the marine park is situated about 30km east of Hopetoun and aligns with the western land boundary of the Esperance Nyungar native title determination area and the Wagyl Kaip and Southern Nyungar Indigenous Land Use Agreement boundary. This boundary runs generally south from the coast on the eastern side of Mason Bay and extends offshore past West Island and Black Rock to the limit of Western Australian coastal waters.

The eastern boundary of the marine park extends along the seaward continuation of the adjoining Wudjari and Ngadju native title determination boundaries, from Point Malcolm Beach to the limit of Western Australia's coastal waters. The southern boundary of the marine park is aligned with the limit of coastal waters of Western Australia and borders the Commonwealth's Southwest Marine Park in some areas. It includes State waters around offshore islands that are surrounded by Commonwealth waters.

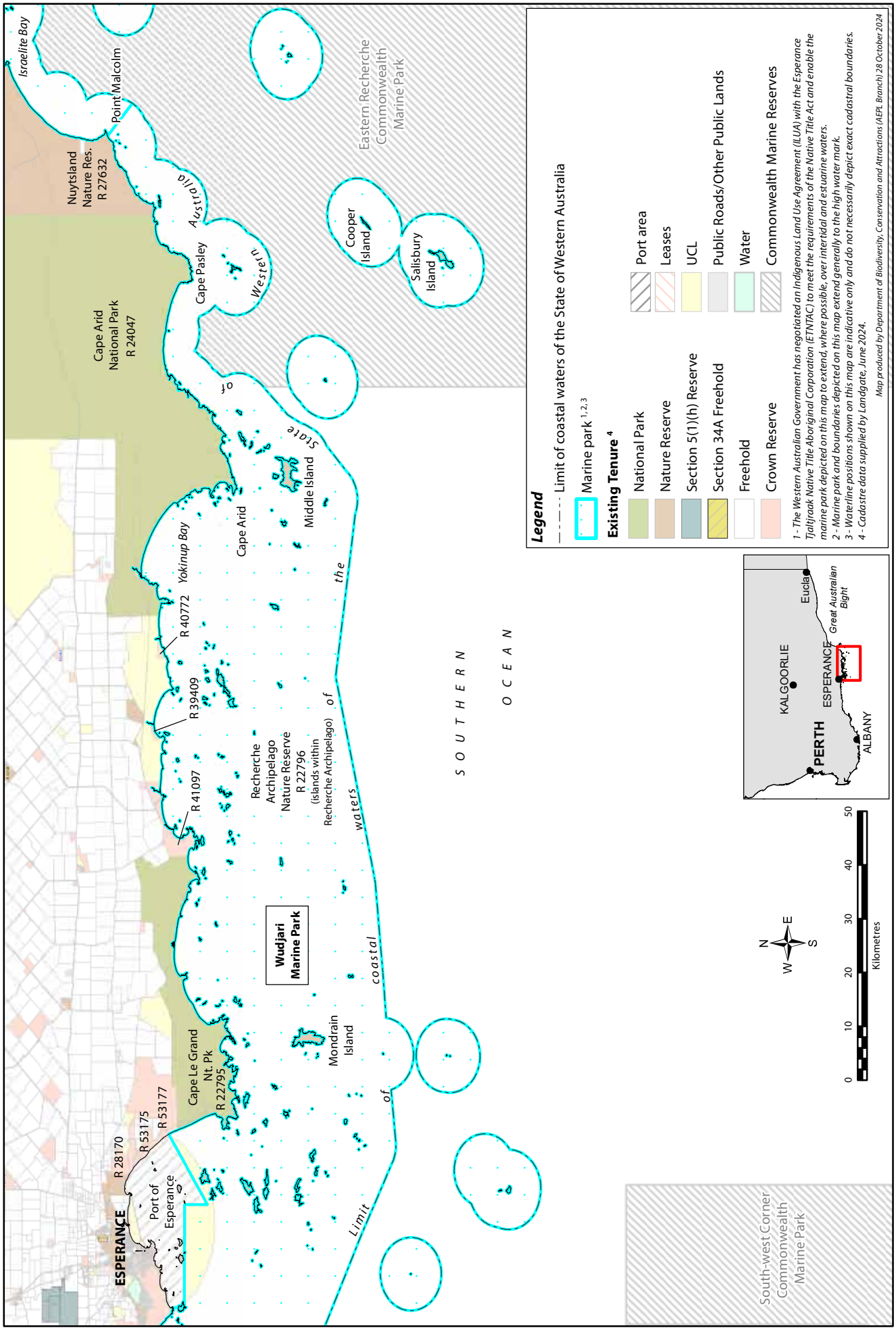
The marine park includes intertidal areas to the high-water mark and tidally influenced estuarine systems subject to adjacent terrestrial tenure and registration of an Indigenous Land Use Agreement with ETNTAC providing for native title consents in accordance with the Commonwealth *Native Title Act 1993*. The Esperance port area is excluded from the marine park. The outer boundary of the marine park and surrounding tenure is shown in Maps 2 and 3.

The marine park is gazetted as a Class A marine park and the intertidal and estuarine portions are jointly vested in the ETNTAC and CPC. Class A reservation provides the highest security of tenure, requiring the approval of Parliament to amend or cancel a reserve's purpose or significantly alter its boundary. By contrast, the zoning scheme and management plan can be amended after a public consultation period with the approval of the Minister for Environment, Minister for Fisheries, and Minister for Mines and Petroleum.





Map 2 – Tenure within and adjacent to Wudjari Marine Park – west



Map 3 – Tenure within and adjacent to Wudjari Marine Park – east

3.2 Legislative context

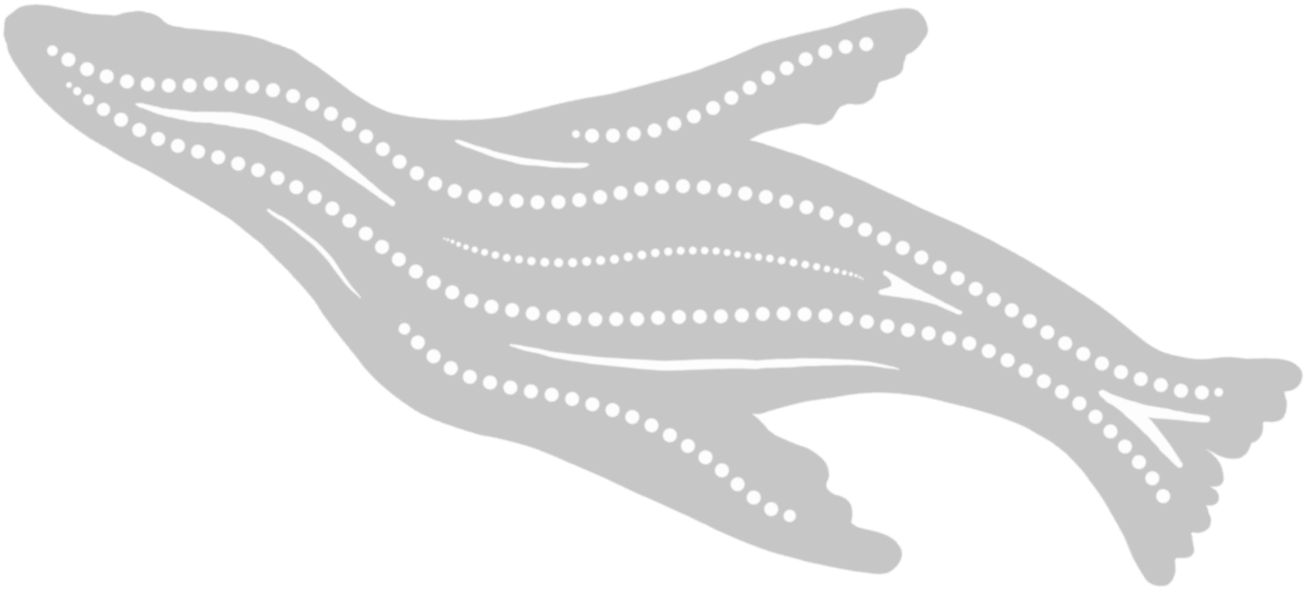
The marine park will be managed in accordance with the provisions of the CALM Act, the *Fish Resources Management Act 1994* (FRM Act), the Conservation and Land Management Regulations 2002 (CALM Regulations), the *Biodiversity Conservation Act 2016* (BC Act), DBCA policy and other relevant legislation and cultural protocols mentioned throughout this plan.

The marine park helps fulfil Australia's responsibilities and commitments under several international conventions, including the Convention on Biological Diversity, and will support the International Union for the Conservation of Nature's Protected Areas Program. The marine park also contributes to Australia's National Representative System of Marine Protected Areas by conserving important marine ecosystems and protecting marine biodiversity through a comprehensive, adequate and representative system of marine reserves.

Delivered in partnership with Wudjari people through the ETNTAC, and by embracing Wudjari people's cultural relationship and vision for Sea Country, the establishment of the jointly managed marine park also addresses Wudjari peoples' rights as stipulated in the United Nations Declaration on the Rights of Indigenous Peoples.

An Indigenous Land Use Agreement (ILUA), pursuant to the *Native Title Act 1993* has been negotiated with the ETNTAC, to provide for the native title consent to create the marine park over the intertidal zone. The ILUA applies the non-extinguishment principle, which means that native title rights and interests continue to exist alongside the marine park and can be exercised consistently with the CALM Act.

Within the marine park, continued customary activities such as fishing and hunting rights are ensured. The FRM Act recognises customary fishing rights, and the CALM Act and BC Act provide for the undertaking of customary activities. ETNTAC is currently engaged in a process to develop Wudjari customary fishing guidelines and protocols with DPIRD.



3.3 Joint management

In recognition of its significant cultural values, Wudjari people's ongoing connection to Country, their obligations to care for it, and the *Esperance Tjaltjraak Healthy Country Plan*, this marine park is to be jointly managed.

In the context of reserves established under the CALM Act, joint management is a partnership between Traditional Owners and DBCA to work together to care for and manage a certain area of Country or Sea Country.

Joint management of the marine park will be an ongoing and adaptive process which will require ETNTAC and DBCA to actively work together, share decision making and undertake management activities collaboratively. Joint management provides the structure to bring together appropriate resources, combine cultural and ecological knowledge, implement and develop innovative conservation practices to achieve the management objectives set out in this plan. Traditional knowledge and understanding of Wadarn Boodja (Wudjari Sea Country) will underpin management decisions for the marine park, and Wudjari people will be actively involved in managing the area.

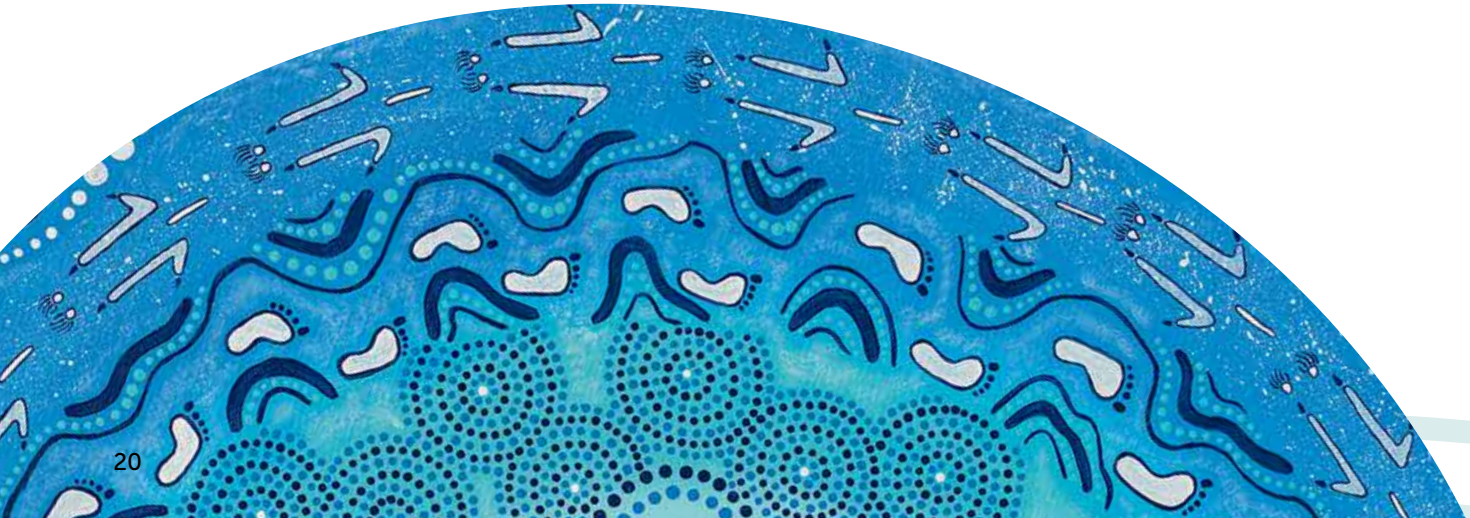
Joint management is given effect through the CALM Act through a signed section 56A JMA which is attached to this plan. For formal joint management to occur, the joint management plan requires the Chief Executive Officer of DBCA to jointly manage the marine park.

The JMA enables the establishment of a JMB (Wudjari representatives nominated by ETNTAC and staff from DBCA) to manage the marine park in accordance with the agreement and the CALM Act. The JMB will oversee management of the marine park, make management decisions, provide strategic input into how management strategies are implemented, monitor implementation of the plan and provide advice in accordance with the management plan.

DPIRD will be invited to present on fisheries management matters to the joint management body.

In addition to joint management of the marine park, the intertidal and estuarine areas of the marine park within the Esperance Nyungar's determination area will be jointly vested with ETNTAC.

Joint vesting of the marine park means that the ETNTAC will not only share the responsibility of making management decisions through the JMB but will also share the overall responsibility with the CPC of making sure the marine park fulfils its purpose.



4. Connection to Wadarn Boodja

Strategic objective: Protect and conserve the values and heritage of the Wudjari Traditional Owners in relation to the marine park.

4.1 Healthy Country

Making Country healthy requires respect of the animals, plants and ecologies that make Country their home. Joint management partners and the broader community cannot work together, undertake conservation, or make Country healthy again if we do not respect each other, and the knowledge, experience, and values everyone brings to the table.

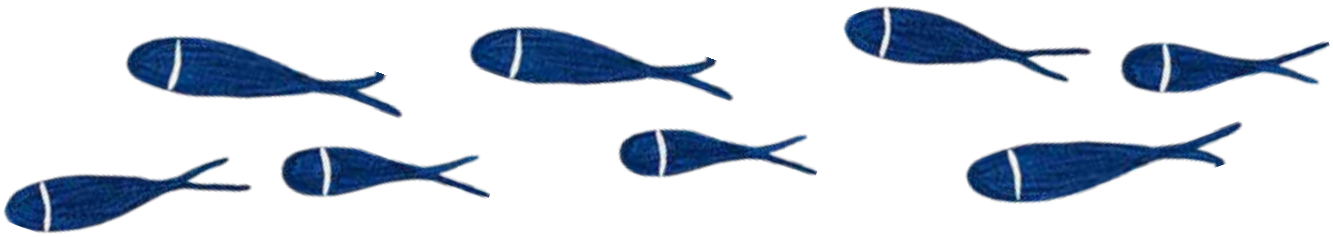
Sea Country is an important part of Wudjari culture and Wudjari people have an essential role to play in its management. Sea Country plans are an important way for Aboriginal people to determine their custodian roles, responsibilities and priorities to care for Sea Country and protect their cultures. Sea Country plans strengthen the conservation and protection of Australia's unique marine and coastal environments, while creating employment and economic opportunities for Indigenous Australians. They also provide important cultural information such as cultural management practices, subsistence fishing and continuity of cultural traditions to be handed down for future generations.

While the Wudjari Marine Park Management Plan applies only to State Waters, Wudjari Traditional Owner's Sea Country extends beyond this into the adjacent Commonwealth waters. To provide better protection for Sea Country in its entirety, Wudjari Traditional Owners intend to pursue the development of a complementary Sea Country Plan (State and Commonwealth waters). A Sea Country Plan would provide a framework for cross-tenure management – from the mainland to the continental shelf – focused on the education, protection, research, and monitoring of Wudjari cultural places, values and landscapes.

Summary of management arrangements for healthy Country	
Requirements	• Recognition and respect of Wudjari peoples' connection to Country. • Governance arrangement for management reflective of Wudjari cultural governance. • Culturally appropriate visitation and respectful behaviour by all visitors.
Pressures	• Erosion of traditional knowledge. • Culturally inappropriate visitation.
Management objectives	• To establish effective, meaningful and collaborative partnerships with Wudjari Traditional Owners to protect heritage values, conserve biodiversity and enhance the resilience of the marine park. • To respect Wudjari peoples' relationship and connection to Wadarn Boodja and ensure Wudjari cultural knowledge and governance is kept central to marine park planning and management.

		Management program	Priority
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Support Wudjari people to maintain their connection to Country.	Management framework	As required
	2. Support the development of cultural awareness communication tools, emphasising the importance of cultural and heritage values for both Traditional Owners and the wider community.	Management framework	H
	3. Develop cultural awareness training material and implement training for government employees and/or contractors working in the marine park.	Education and interpretation	H
	4. Design and develop management tools to address the impacts of human activities that may prevent cultural fulfilment to uphold Traditional Owner cultural rights and obligations.	Management framework	L
	5. Assess and monitor human activities that impact on the continuity of cultural fulfilment.	Monitoring	L
	6. Develop a framework to ensure the right cultural processes are used for assessment and approval of proposals in the marine park.	Management framework	H
	7. Educate visitors about appropriate behaviour, respecting privacy and access restrictions where applicable.	Education and interpretation	M
	8. Undertake cultural surveys and cultural reviews across Wadarn Boodja, including underwater archaeological assessments to establish baseline heritage knowledge for the region, and use the results to inform marine park management and track ecological change.	Research	H
	9. Investigate research opportunities for assessing the connectivity between marine and terrestrial ecologies, Wadarn Boodja and the relationship between submerged cultural places/landscapes, and marine habitats and ecologies in Wadarn Boodja.	Research	As required
	10. Develop and establish programs that include art, youth and community camps, cultural mapping, cultural perspectives programs and oral histories, that foster intergenerational sharing and community education.	Management framework	M
	11. Progress the development by Wudjari Traditional Owners of a Sea Country plan, covering state and Commonwealth waters, and focused on the education, protection, research, and monitoring of Wudjari cultural places, values and landscapes.	Management framework	M

Performance measures	To be determined by the JMB
Target	To be determined by the JMB
Reporting	To be determined by the JMB



4.2 Employment and development

"Us oldies, our time's going to end.
We need to invest in our young people, they're our future."
Wudjari Elder

Building on the objectives of joint management and understanding that Country cannot be healthy if its people are unhealthy, the marine park management plan considers measures and programs for cultural leadership in knowledge exchange and integration. This includes providing opportunities and resources to support the capacity building of the Tjaltjraak Sea Country Program and team. These components relate to directly alleviating structural and social inequalities, through projects and programs delivered under the marine park plan through cultural leadership. Elders recognise that this may be an ongoing process, however, emphasised the need to ensure that rangers are given every opportunity to develop their skills and abilities.

The growth and fulfilment of our communities is an important component of managing Country. There is need to ensure that the marine park enhances opportunities across Wudjari Boodja, rather than overtly restricting them. Wudjari Elders acknowledge that everyone — managers and those in the broader community — have knowledge, experience and expertise, and there is a need to build on these strengths in order achieve the best outcomes for Country.

Summary of management arrangements for employment and development			
Requirements	Strong cultural governance and cultural leadership.		
Management objectives	To enable Traditional Owners to achieve economic benefits consistent with the purpose of the marine park.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Develop mechanisms to empower Wudjari JMB members to support the recruitment and retention of Wudjari staff.	Management framework	H
	2. Employ Wudjari people in a range of roles relating to the marine park, including science pathways, scholarships, training, cadetships, administration and planning.	Management framework	H
	3. Actively pursue linkages to other organisations and stakeholders to create opportunities for the Wudjari community to create business development and employment relating to the marine park, including philanthropic sponsorship.	Management framework	M
	4. Develop tailored pathways, training, education and mentoring to enable Wudjari people to fulfil positions of employment relating to the management of the marine park, including DPIRD positions [DPIRD].	Management framework	H
	5. Encourage the establishment of cultural tourism business in the marine park.	Management intervention and visitor services	H
Performance measures	To be determined by the JMB		
Target	To be determined by the JMB		
Reporting	To be determined by the JMB		

4.3 Special Wudjari places and ancient cultural corridors

"Everything's significant culture way. But some places are special. They're significant for different reasons..."
Wudjari Elder

There are some places in Wadarn Boodja where stories, ecologies and material heritage are particularly dense, and meaningful to Wudjari people (Smith, 1993; Mitchell, 2016; Guilfoyle, et al., 2019). Sometimes they are also meaningful to other groups that make Kepa Kurl (Esperance) their home. Many of these places are where the Wudjari old people and others used to (and still do) gather, and so they must be managed carefully. Some of these places have Wudjari cultural or colonial stories associated with them, some are important places to conduct cultural-ecological research, and some are places that must be protected due to the species and ecological processes that inhabit them.

The density of stories at these places makes them particularly vulnerable to threats and require strong forms of management, including cultural and scientific research, monitoring, and protection. People visiting these places must be respectful and share in Wudjari cultural protocols. An overarching management recommendation for this Plan is to develop a cultural heritage management plan for each special Wudjari place.

Long-nosed furseal pup on Salisbury Island. Courtesy of Andy McGregor/ETNTAC

Wudjari Boodja is comprised of a number of cultural corridors. These corridors are ancestral pathways – where the old people used to travel, camp and find food. They run from the north of Wudjari Boodja all the way to Wadarn Boodja. In the past, particularly during the last glacial maximum, sea levels were considerably lower than they are today. This means that Wudjari cultural corridors extended much further out to sea, possibly all the way to the continental shelf. Cultural knowledge and archaeological evidence document how corridors followed where estuaries currently flow. Just as the granite outcrops of Kepa Kurl are special places for Wudjari today, the islands of the Recherche Archipelago were special places for the old people and are part of the ongoing cultural heritage and identity of Wudjari today.

"Years ago, the islands were connected to the mainland.
So, they'll be storylines that go out all that way.
And even today, those storylines still go out to the ocean."
Wudjari Elder

For Wudjari Elders and the wider community, understanding more about the natural and cultural heritage of Wadarn Boodja is extremely important. New knowledge and ways of seeing Wadarn Boodja rejuvenates and build connections with the ocean. Building an understanding of Wadarn Boodja's cultural corridors is a critical part of this rejuvenation. Submerged cultural features and landforms have been documented on and near islands and within the intertidal zones of Wadarn Boodja (Ward et al., 2023; Dortch & Morse, 1984; Bindon, 1996; Smith, 1993). It is anticipated that significant cultural features and archaeological sites now underwater will be found across the Recherche Archipelago. Such sites would likely be thousands of years old and contain a wealth of information about human-environment relations in a changing landscape. Here then, there is a significant potential for Wudjari Wadarn Boodja to become a world class research destination for understanding the ancient human and ecological history of this continent.

Summary of management arrangements for special Wudjari places and ancient cultural corridors	
Requirements	• Recognition and respect of Wudjari peoples' right to speak for and look after Country. • Culturally appropriate visitation and respectful behaviour by all visitors. • Opportunity for Traditional Owners to access cultural places to continue their use and to manage and protect sites. • Acceptance of the separation of specific men's and women's cultural business. • Formal cultural research designs and programs to systematically study and protect cultural values, places and landscapes relating to ancient coastlines and ancient landforms.
Pressures	• Difficulties in accessing Country. • Erosion of traditional knowledge. • Culturally inappropriate visitation.
Management objectives	• To facilitate the opportunity for Wudjari people to care for boodja (Country) and keep it strong. • To promote increased understanding and respect for Wudjari peoples' living cultural landscape and concepts of the marine park. • To identify, manage and protect places and landscapes of cultural significance.

		Management program	Priority
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Work with adjacent landowners to ensure coastal development proposals consider if and how they impact marine park values [LGAs].	Management framework	L
	2. Conduct an audit and create a database of all cultural places within the marine park and establish a program of works to actively protect and manage these areas.	Management framework	M
	3. Undertake further research into submerged cultural landscapes to identify and confirm features and associated ethnographic information for protection, research, monitoring, and management.	Research	H
	4. Develop and implement tools to measure and monitor impacts on cultural places and implement strategies to address issues where possible and appropriate.	Monitoring	M
	5. Support Wudjari people to teach their younger generations about cultural places and landscapes, field methodologies and heritage place management.	Education and interpretation	M
	6. Facilitate and resource appropriate Elder mentoring and guidance for Wudjari employees when they are working at cultural places.	Management framework	As required
	7. Establish relationships with external researchers and universities, encouraging archaeological and heritage research projects, conducted according to Wudjari cultural protocol, that explore ancient Wadarn Boodja corridors and ensure the results are used to inform marine park management.	Management framework	As required
	8. Develop and implement cultural education materials and interpretive signage for Wudjari special places, including plaques or other suitable forms of interpretation on coastal areas and islands to document aspects of Wudjari history.	Education and interpretation	H
	9. Ensure patrol activities and monitoring plans have a focus on Wudjari cultural corridors within the marine park (that includes coastal-estuarine-island-submerged complexes).	Management framework	As required
	10. Support Traditional Owners to access, identify, protect and maintain cultural heritage sites in the park, in particular, identified high priority, highly significant and/or sensitive sites.	Management framework	M
	11. Identify culturally and ecologically sensitive sites that require additional protection and manage access through commercial operator licences, by regulation or other mechanisms as relevant.	Management intervention and visitor services	H

Performance measures	To be determined by the JMB
Target	To be determined by the JMB
Reporting	To be determined by the JMB

5. Caring for Country

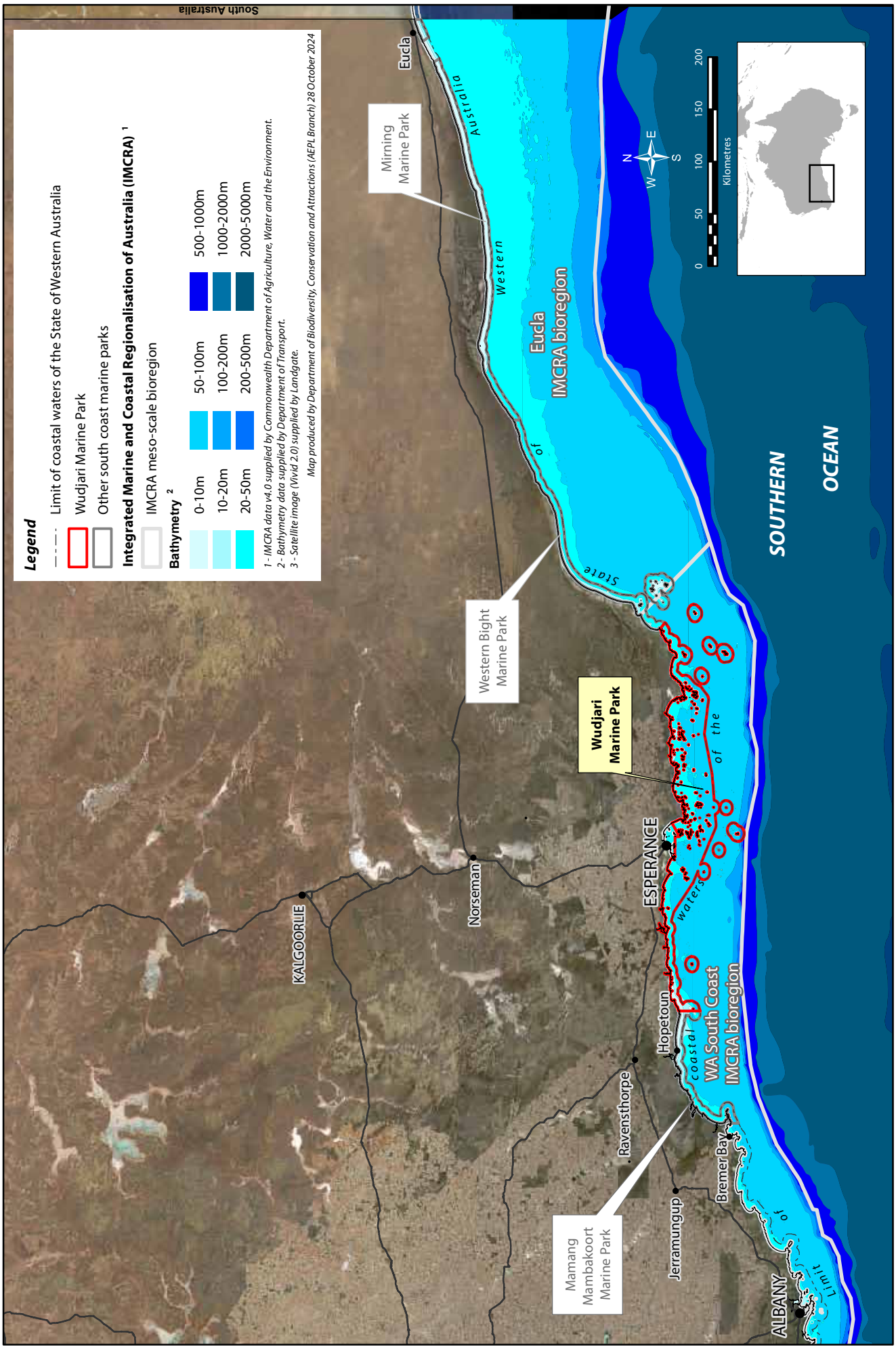
Strategic objective: Enhance, maintain and conserve a healthy Sea Country, including marine biodiversity and ecological integrity.

Healthy boodja is vibrant. It is full of colour and life and sounds and smells. It is vivid and fulfilling, filling one up with energy and good feelings. Vibrant boodja also has vitality. It is full of all different sorts of life and habitats. There are lots of species and those species are abundant. Boodja that has vitality is less susceptible to changes or adverse impacts, it is strong and feels good to be in.

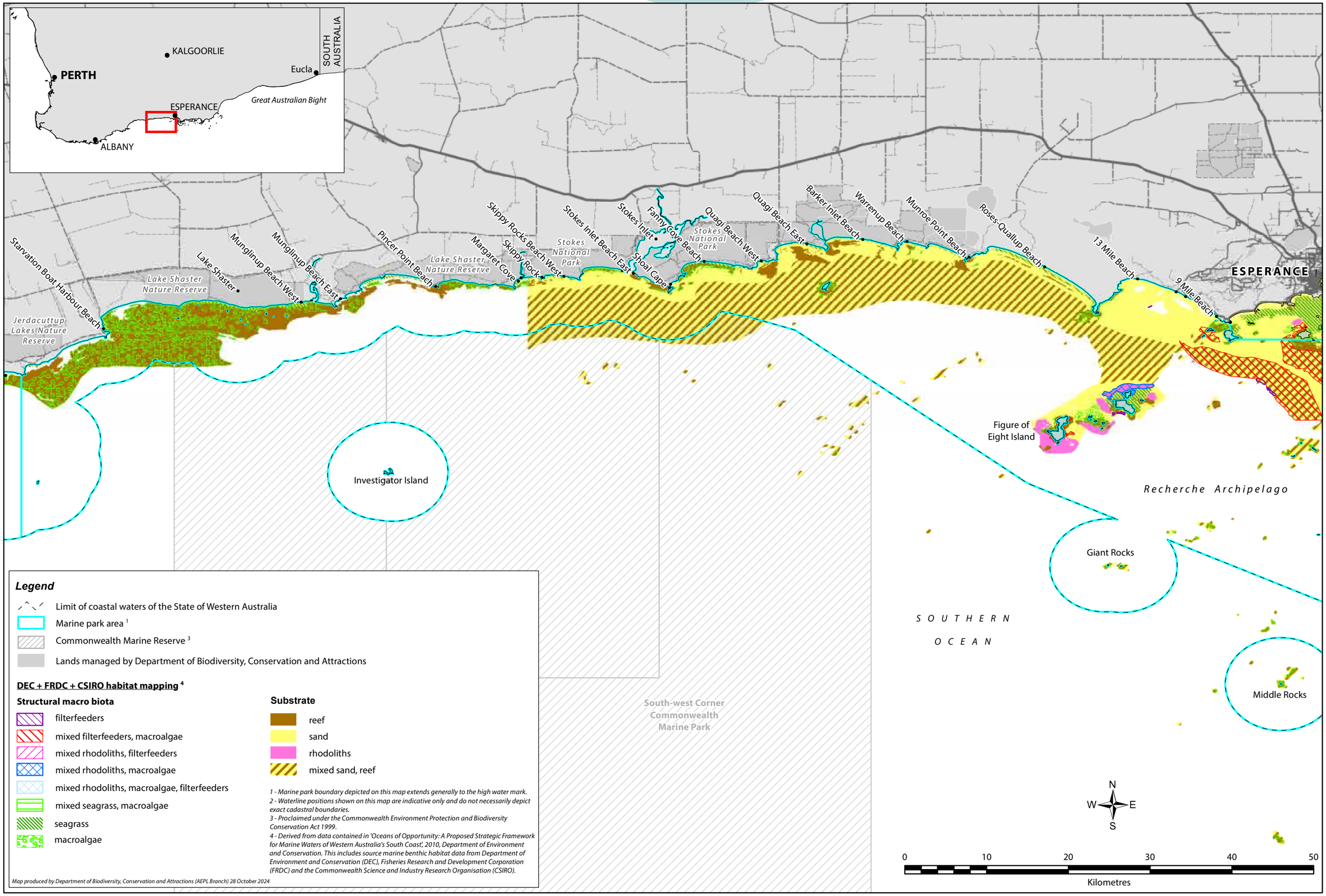
This extends to the people that live on boodja. People on healthy boodja are also vibrant and have vitality, because they are actively involved in making it so. Looking after boodja is like caring for people, because if we don't look after Country, Country doesn't look after us. Managing boodja involves being out on Country, working, fishing and enjoying it, ensuring that it stays vibrant and vital for future generations.

Cultural and ecological values are highly interconnected, and it is understood that separating these values is not compatible from a holistic viewpoint. However, for the purpose of developing clear management objectives and strategies for each value, ecological values have been separated into individual values which allows for transparent and accountable management, audit and review processes. The purpose of this section of the joint management plan is to identify each ecological value within the Wudjari Marine Park, to note existing conditions, threats and pressures and outline management strategies that are designed to conserve and protect the natural environment, flora and fauna (Maps 4-8). This includes physical, geological, chemical and biological characteristics of the area. The inseparable links between people and Country are acknowledged within this section, however, management strategies that promote these uses are included in other sections of the management plan.

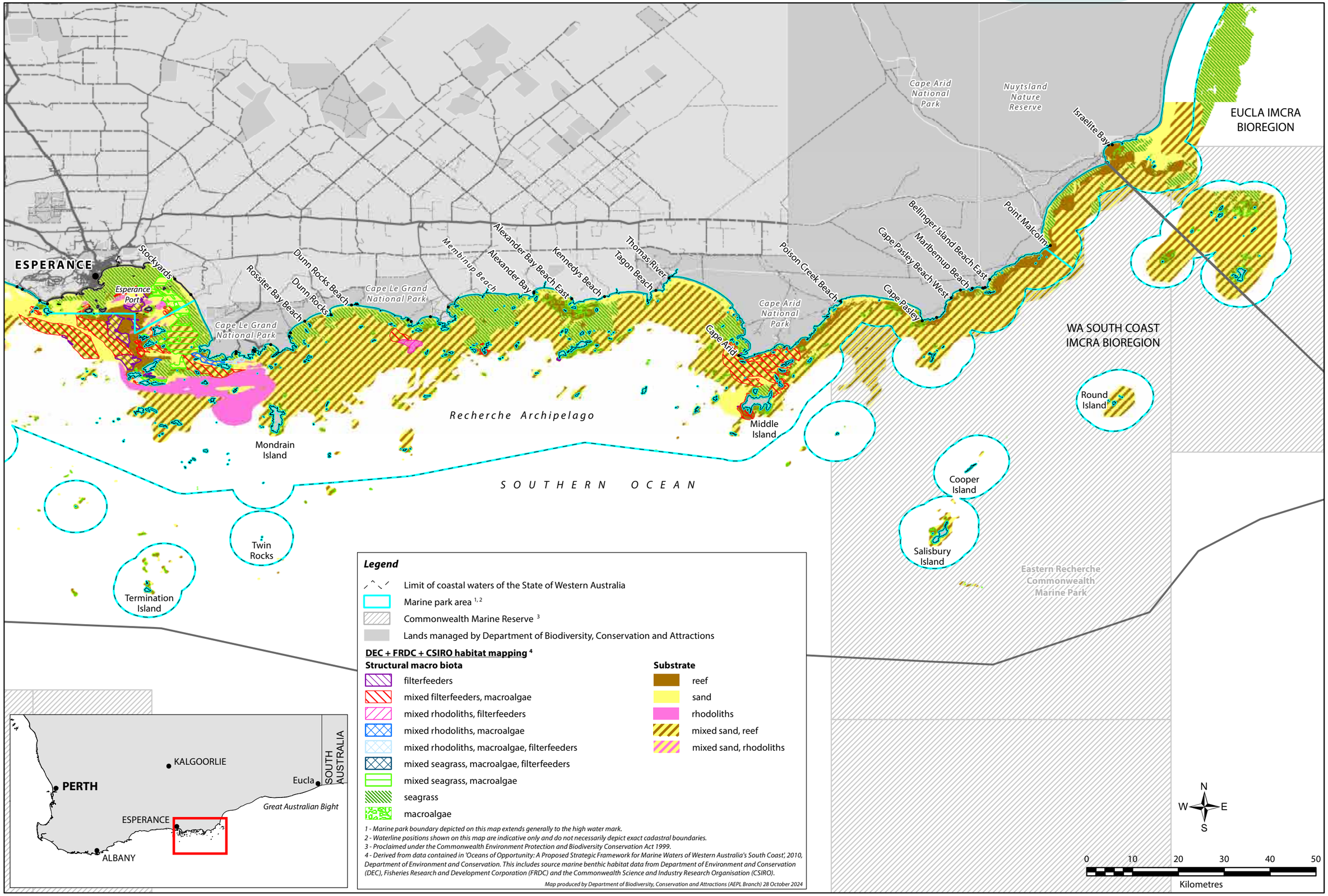
Collecting data on seabird chicks as part of the Tjaltjraak Healthy Sea Country Program. Courtesy of Genevieve Carey



Map 4 – Marine Bioregions, bathymetry and Wudjari Marine Park



Map 5 – Known marine habitats within and adjacent to Wudjari Marine Park – west.



Legend

- Limit of coastal waters of the State of Western Australia
- Marine park area [1, 2]
- Commonwealth Marine Reserve [3]
- Lands managed by Department of Biodiversity, Conservation and Attractions

DEC + FRDC + CSIRO habitat mapping [4]

Structural macro biota

- filterfeeders
- mixed filterfeeders, macroalgae
- mixed rhodoliths, filterfeeders
- mixed rhodoliths, macroalgae
- mixed rhodoliths, macroalgae, filterfeeders
- mixed seagrass, macroalgae, filterfeeders
- mixed seagrass, macroalgae
- seagrass
- macroalgae

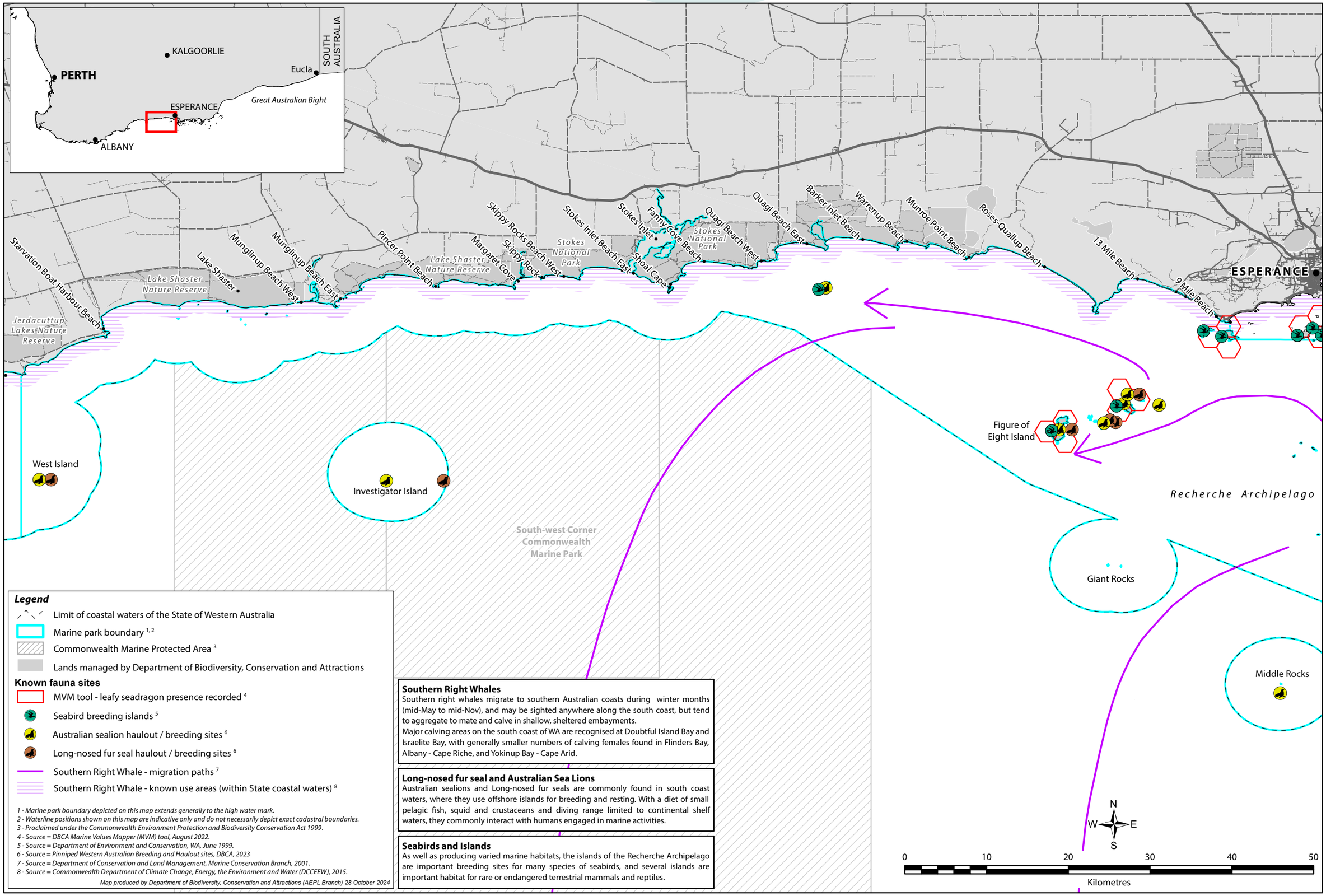
Substrate

- reef
- sand
- rhodoliths
- mixed sand, reef
- mixed sand, rhodoliths

1 - Marine park boundary depicted on this map extends generally to the high water mark.
2 - Waterline positions shown on this map are indicative only and do not necessarily depict exact cadastral boundaries.
3 - Proclaimed under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
4 - Derived from data contained in 'Oceans of Opportunity: A Proposed Strategic Framework for Marine Waters of Western Australia's South Coast', 2010, Department of Environment and Conservation. This includes source marine benthic habitat data from Department of Environment and Conservation (DEC), Fisheries Research and Development Corporation (FRDC) and the Commonwealth Science and Industry Research Organisation (CSIRO).

Map produced by Department of Biodiversity, Conservation and Attractions (AEPL Branch) 28 October 2024

Map 6 – Known marine habitats within and adjacent to Wudjari Marine Park – east



Legend

- Limit of coastal waters of the State of Western Australia
- Marine park boundary [1, 2]
- Commonwealth Marine Protected Area [3]
- Lands managed by Department of Biodiversity, Conservation and Attractions

Known fauna sites

- MVM tool - leafy seadragon presence recorded [4]
- Seabird breeding islands [5]
- Australian sealion haulout / breeding sites [6]
- Long-nosed fur seal haulout / breeding sites [6]
- Southern Right Whale - migration paths [7]
- Southern Right Whale - known use areas (within State coastal waters) [8]

1 - Marine park boundary depicted on this map extends generally to the high water mark.
2 - Waterline positions shown on this map are indicative only and do not necessarily depict exact cadastral boundaries.
3 - Proclaimed under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
4 - Source = DBCA Marine Values Mapper (MVM) tool, August 2022.
5 - Source = Department of Environment and Conservation, WA, June 1999.
6 - Source = Pinniped Western Australian Breeding and Haulout sites, DBCA, 2023
7 - Source = Department of Conservation and Land Management, Marine Conservation Branch, 2001.
8 - Source = Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), 2015.

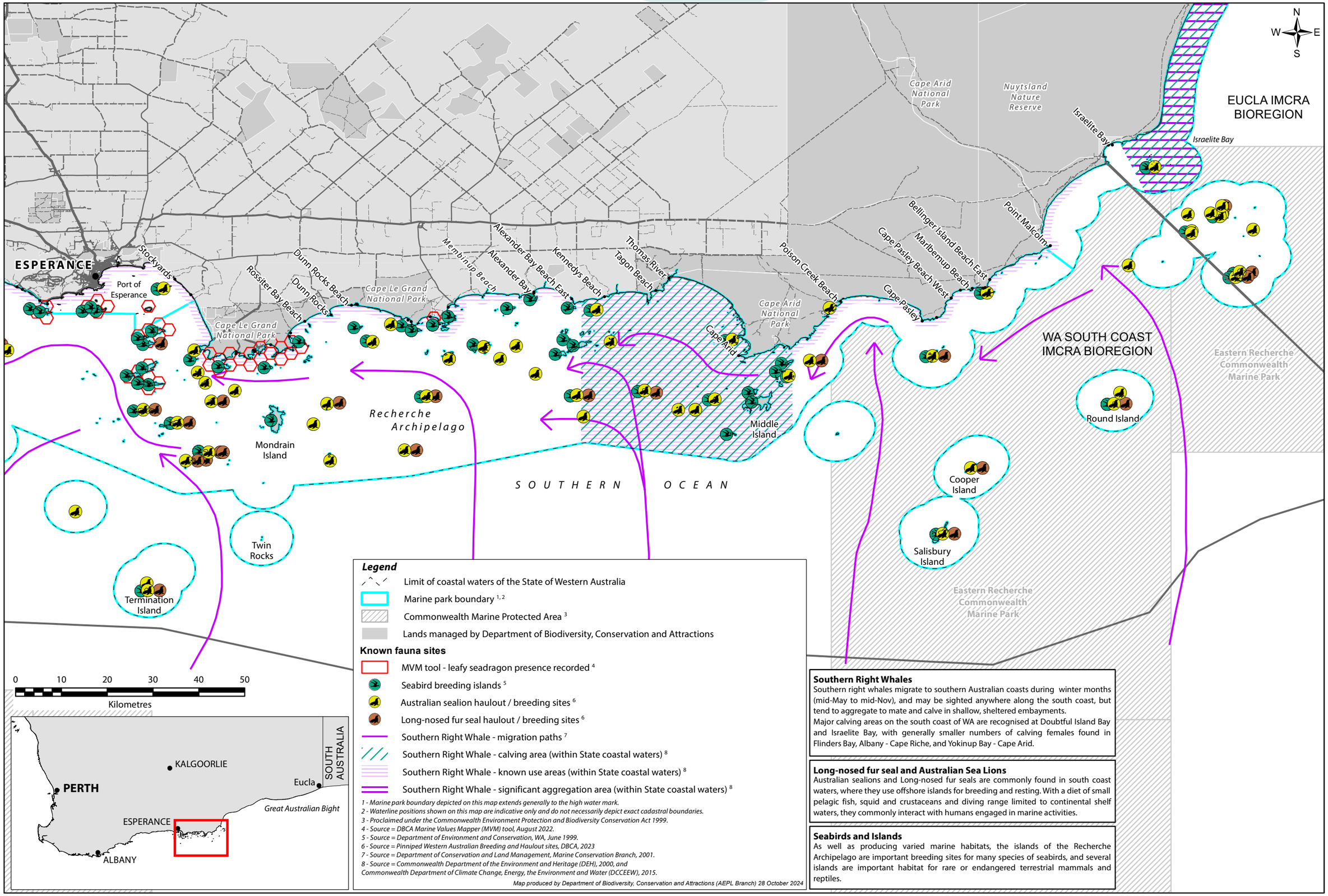
Map produced by Department of Biodiversity, Conservation and Attractions (AEPL Branch) 28 October 2024

Southern Right Whales
Southern right whales migrate to southern Australian coasts during winter months (mid-May to mid-Nov), and may be sighted anywhere along the south coast, but tend to aggregate to mate and calve in shallow, sheltered embayments.
Major calving areas on the south coast of WA are recognised at Doubtful Island Bay and Israelite Bay, with generally smaller numbers of calving females found in Flinders Bay, Albany - Cape Riche, and Yokinup Bay - Cape Arid.

Long-nosed fur seal and Australian Sea Lions
Australian sealions and Long-nosed fur seals are commonly found in south coast waters, where they use offshore islands for breeding and resting. With a diet of small pelagic fish, squid and crustaceans and diving range limited to continental shelf waters, they commonly interact with humans engaged in marine activities.

Seabirds and Islands
As well as producing varied marine habitats, the islands of the Recherche Archipelago are important breeding sites for many species of seabirds, and several islands are important habitat for rare or endangered terrestrial mammals and reptiles.

Map 7 - Known marine fauna within and adjacent to Wudjari Marine Park (west)



Map 8 - Known marine fauna within and adjacent to Wudjari Marine Park (east)

5.1 Geomorphology

The landforms and seascapes of Wudjari Country are part of the heritage, identity and ongoing cultural connections of the community, imbued with spiritual meaning and significance. The marine habitats are also understood as the ancient landforms of the Wudjari and are of heritage value and significance.

In this way, all landforms have cultural associations, names, stories, uses and features, and are part of the identity and heritage of Wudjari. A biocultural corridor is essentially connected landforms and associated ecosystems — land and sea. They're linked to creation stories, with protocols for learning, visiting, connecting with, protecting and honouring.

The IMCRA is a framework developed for classifying Australia's marine environment into ecological bioregions at a scale useful for regional planning. These bioregions are used as the basis for the development of a National Representative System of Marine Protected Areas (NRSMPA). The Wudjari Marine Park lies in the South Coast IMCRA Bioregion (Map 4), which is characterised by long term carbonate sedimentation, granites and numerous canyons. The Recherche Shelf extends from Cape Leeuwin to Israelite Bay and supports four main rocky reef systems and an archipelago of ~105 islands and ~1,500 islets known as the Recherche Archipelago. While the reef systems and Recherche Archipelago provide some protection from south-west swells and winds, the marine park is typically exposed to high energy.

The coastal geomorphology of Wudjari Country consists of a repeating pattern of long, arcing sandy beaches backed by dunes and located between high, cliffed granitic, doleritic or metasedimentary headlands (Sanderson et al., 2000). The most exposed parts of headlands facing south and south-west are either cliffed or fronted by steep slopes which are swept by wave action. The south-eastern sides of the headlands, adjacent to the next wide bay and beach, are exposed to lesser wave action and tend to have granite or gneiss boulder fields along the shore (CALM, 1994; Sanderson et al., 2000).

The geomorphology is determined predominantly by wave refraction around discrete headlands and islands. Foredune plains occur primarily as fill in sheltered bays. Oceanographic processes play a major part in shaping the coast, and together with the morphology of the seabed, contribute to influencing the distribution of biota, for example, exposure to wave energy appears to determine the distribution of unconsolidated substrate and is the most useful regional scale predictor of rhodolith and seagrass habitats (Ryan et al., 2007).

Ancient drainage channels occur on the seafloor, providing evidence that sea level in the area was 120m lower 18,000 years ago at the end of the last glacial maximum, and that coastal drainage channels flowed across the current continental shelf to the shelf break (SCRMPWG, 2010).

The beaches along the open coast of the Wudjari Marine Park are exposed to heavy surf and generally consist of coarse sands. Intertidal sand flats occur in sheltered corners and are not extensive (CALM, 1994). Wherever offshore structures protect the shore from the direct effects of swell, sheltered sandy beaches have developed in association with cuspate forelands and tombolos (Sanderson et al., 2000).

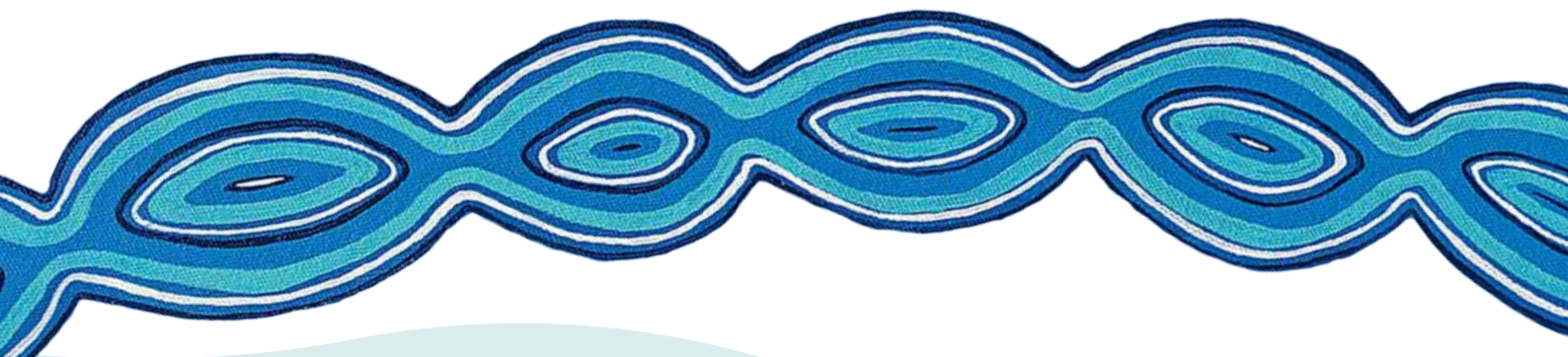
Broadly, ecological communities on beaches within the marine park can be characterised by sheltered sandy beaches and exposed south-facing headlands of limestone and granite (CALM, 1994). Ecological communities on sandy beaches rely primarily on marine based nutrient sources (McLachlan & Brown, 2006). Beach-cast wrack is prominent on many beaches within the marine park and provides nutrients to the generally low-productivity habitats of sandy beaches (Ince et al., 2007).

Beaches provide important habitat for macroinvertebrate assemblages and shorebirds. Limestone and granitic intertidal platforms provide a hard substrate on many of the beaches within the marine park, and generally support a high diversity of macroinvertebrates and marine flora (Bessey et al., 2018). Beaches are also highly valued for recreational coastal activities and are significant features to the lifestyle of people on the South Coast, including those who visit for holidays.

Threats to the geomorphology of the marine park include climate change (causing increased storms and erosion), physical disturbance from recreational activities, such as four-wheel driving, and coastal development. Disturbance from coastal development is centred around the main coastal towns in the region. A significant proportion of the South Coast is encompassed within national parks and nature reserves which has reduced development pressures. Locations within the marine park may be identified for development e.g. a potential port for Butty Head. Proposed developments likely to have a significant impact on the environment and cultural heritage (Ward et al 2022) are referred to the Environmental Protection Authority (EPA) and may be subject to the environmental impact assessment requirements of the *Environmental Protection Act 1986* (EP Act). There are similar assessments under the *Aboriginal Heritage Act 1972* for cultural heritage and sites. Boat harbours are usually managed by the Department of Transport (DOT), with boat ramps administered by local authorities.

Coastal communities are cultural complexes. Courtesy of Genevieve Carey/ETNTAC

Summary of management arrangements for geomorphology			
Current status	The geomorphology of the marine park is generally undisturbed. However, parts of the coastline have been altered by coastal development including groynes, marinas and ports.		
Pressures	• Physical disturbance (e.g., trampling/4WD access). • Large scale coastal developments such as groynes, marinas and ports (both current and future projects). • Construction of general marine infrastructure (e.g., navigation markers, jetties). • Potential ground-disturbing mining exploration/development.		
Current major pressure	Climate change		
Management objectives	• To ensure that geomorphology of the marine park is understood in relation to Wudjari cultural places and values, and associated knowledge systems of management and protection. • To ensure that the geomorphology of the marine park is not significantly affected by human activities.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Undertake and/or support research to characterise the geomorphologic features and processes in the marine park, and associated cultural connections, place names and knowledge systems.	Research	L
	2. Monitor the condition of geomorphology and the pressures acting on it within the marine park.	Monitoring	L
	3. Educate users about the cultural and ecological importance of the marine parks' geomorphology and appropriate access to protect sensitive coastal landforms.	Education and interpretation	H
	4. Ensure that advice relating to coastal and offshore development activities in the area that have the potential to disturb the geomorphology of the marine park is provided to the relevant statutory authority as part of environmental impact assessment and approvals processes.	Management framework	As required
	5. Ensure effective management of commercial and recreational access and use of coastal landforms adjacent to the reserves through liaison with coastal land managers.	Management framework	L
Performance measures	Indicators to be developed but may include: • area of coastal disturbance • area of seabed disturbance.		
Target	• No significant change of seabed structural complexity as a result of human activity in the park except for in approved development sites. • No significant change in coastal and island landform structure as a result of human activity in the park except for in approved development sites.		
Reporting	5-10 years		



5.2 Water and sediment quality (KPI)

"We use our senses, to experience, feel, understand, and connect with Wadarn Boodja."
Wudjari Elder

High water quality in the Wudjari Marine Park is essential to maintain healthy ecosystems and support unique species that depend on the clear waters of the South Coast. Water quality is strongly influenced by oceanographic processes, including water temperature, currents, wind and wave action. There is little exchange and/or flushing occurring between Wadarn Boodja and estuarine systems as the majority of estuary sandbars remain closed to the ocean all year around. There is extremely low flow from rainfall, resulting in very low and intermittent freshwater input into the marine environment (SCRMPWG, 2010).

Due to the high penetration of sunlight into the marine environment, light is generally less limiting to benthic habitats and planktonic primary producers on the inner continental shelf, where water column turbidity from phytoplankton bloom and from river discharges are small (Carruthers et al., 2007; Kendrick et al., 2009). The surface waters of the south-western Australian shelf, waters of the Leeuwin Current and surface waters offshore are very low in nitrogen year-round and primary productivity is nitrogen limited (Kendrick et al., 2009; Lourey et al., 2006).

Potential sources of marine pollution and other pressures on water quality in the marine park include:

- marine debris and litter
- ship-sourced pollution incidents (i.e., oil spills) and operational related impacts (i.e., product spill and the release of anti-fouling biocides)
- wastewater from aquaculture projects which can potentially contain contaminants, pathogens and/or high levels of nutrients if not managed appropriately (noting there are no existing or proposed aquaculture projects within the marine park)
- dredging and dredge spoil disposal
- habitat degradation due to coastal developments.

Water quality in the marine park is believed to be relatively unaffected by marine pollution caused by boating and fishing. The most dominant water quality issues experienced on the South Coast relate to estuaries and ports (SCRMPWG, 2010).

Sewage discharge from vessels has the potential to increase nutrient levels and to cause health problems due to elevated bacterial levels. The impact of sewage discharge from vessels will vary considerably from place to place and seasonally as a consequence of environmental parameters (e.g., water circulation) and human usage patterns (e.g., number of vessels). The *Strategy for Management of Sewage Discharge from Vessels into the Marine Environment* (DoT, 2009) outlines guidelines for marine sewage discharge in Western Australian waters.

In the marine park, the following sewage discharge scheme is recommended, however during the life of the management plan, it may be amended if considered necessary:

- sanctuary zones and special purpose zones will be 'Zone 1' (no discharge areas)
- waters in general use zones within 500m seaward of the low-water mark will be 'Zone 2' (discharge only using approved treatment systems).
- waters in general use zones from 500m seaward of the low water mark will be 'Zone 3' (open discharge areas).

Development and infrastructure proposals that have the potential to impact on sediment and water quality in Western Australia are subject to assessment under the EP Act. The EPA can set conditions for sediment quality, which are subsequently regulated by Department of Water and Environmental Regulation (DWER).

Rocky reef habitat that defines areas of the Wudjari Marine Park. Courtesy of ETNTAC

Summary of management arrangements for water and sediment quality			
Current status	Water and sediment quality within the marine park are believed to be in generally excellent condition. Some localised areas, including estuaries, may have lower water or sediment quality.		
Pressures	• Lack of knowledge regarding the cultural values and significance to water and sediments. • Introduction of nutrients and toxicants from wastewater, storm water and aquaculture. • Vessel discharge (e.g., sewage, ballast water). • Large scale coastal developments such as groynes, marinas and ports (both current and future projects). • Construction of general marine infrastructure (e.g., navigation markers, jetties). • Potential sand mining, dredging and other sand bypassing works. • Eutrophication from agricultural land clearing and loss of riparian buffer zones in estuarine areas. • Major pollution event (e.g., chemical or oil spills).		
Current major pressure	• Climate change • Marine debris/litter		
Management objectives	To ensure the water and sediment quality of the marine park is not significantly impacted by marine debris and human activities.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Develop cultural education programs to communicate the cultural values of water and sediment to the broader community as the foundation for respect, nurturing and enhancement.	Education and interpretation	M
	2. Facilitate long-term management by accumulating spatial and temporal information on impacts on water quality of various activities in the reserve.	Research	H
	3. Establish a collaborative approach with adjacent land managers and relevant authorities in seeking to minimise catchment and urban-based inputs that have the potential to affect the marine park's water quality (i.e., marine debris, nutrients and stormwater).	Management framework	H
	4. Educate users about regulations on boat sewage disposal and enforce controls on the discharge of sewage from vessels in the marine park.	Education and interpretation	M
	5. As part of on-Country work, patrol the shoreline and waters of the marine park for marine debris and remove and record as necessary; and seek support of partners and marine park users to do the same.	Management intervention and visitor services	As required
	6. Increase awareness of marine debris via the action-oriented projects focused on the impacts of marine debris that are part of the Tjaltjraak Healthy Sea Country Program.	Education and interpretation	M
	7. Develop an education campaign to encourage visitors to care for and clean Wadarn Boodja, taking all rubbish with them, and cleaning up litter when they can, including ways to minimise gear loss and appropriate disposal. [DPIRD]	Education and interpretation	H

	8. Support and/or promote research, including citizen science projects, to establish the origin of litter, litter surveys, beach clean-ups and other waste minimisation strategies for marine debris/ plastic within the marine park.	Research	M
	9. Undertake and/or support research on water and sediment quality in the marine park, including establishing baselines for water and sediment quality and understanding natural variability.	Research	H
	10. Monitor the condition of water and sediment quality within the marine park, including in major estuaries and share this information with terrestrial land managers.	Monitoring	H
	11. Work with relevant departments, users of the marine park and stakeholders to address sources of marine debris in the marine park.	Management framework	M
Performance measures	Indicators to be developed but may include: • Sea temperature. • Nutrient concentration. • Toxicants concentration. • Pathogen concentration. • Marine debris mass. • Kilometres of coastline cleaned. • Number of beach clean-up events per year.		
Target	• No significant increase in oceanic waters in nutrient, toxicant and pathogen concentrations. • Decrease in nutrient and toxicant concentration in estuarine waters. • Decrease in marine debris/litter throughout the park.		
Reporting	3-5 years		

Tjaltjraak Ranger Zoe Bullen working with partners to map seafloor habitats. Courtesy of Genevieve Carey/ETNTAC

5.3 Estuarine, saltmarsh and mudflat communities

'All estuaries are cultural zones of the Wudjari – they represent Songlines and important lungs and filters – the connector between our lands and sea'.
Wudjari Elder

The estuaries of the South Coast are part of the Creation Stories of Wudjari. For example, the Benwenerup Biel is referred to as a "spiritual highway"— a landscape of sacred and spiritual importance. The creation story that details a dispute between the gnow (mallee fowl), the walitj (eagle) and the people (wardung, or the crows). The story accounts for the protocols related to sharing, protecting water systems, and the events that also led to the creation of the estuary (Walitj Benwenerup).

"Our stories tell of these songlines, these creation stories—they are our lore, how our ancestors mandate the way we need to care and manage this system. So, we have a set of binding principles for the management of the waterway and estuary. We inherit the responsibility to uphold these principles and care for these waters."
Wudjari Elder

The marine park is characterised by the numerous estuaries that are scattered throughout. Estuaries are home to a diverse range of plants and animals and are internationally recognised as important to migratory birds. Estuaries are extremely important to the Wudjari people, being highly significant in ancient cultural corridors, and archaeological findings provide evidence of Wudjari use over thousands of years.

Western science documents the formation of estuaries along the South Coast of Western Australia around 7,000 years ago. They remained tidally dominant systems until around 4,000 years ago when they shifted towards wave-dominated systems (SCRMPWG, 2010). The South Coast region's estuaries and catchments are highly heterogeneous systems, experiencing extreme seasonal variation in rainfall, runoff, river flow, tidal regime, river discharge and entrance sandbars.

Seasonal fluctuations are characterised by differences in environmental characteristics of estuary basins, with freshwater estuarine systems in winter and brackish to hypersaline systems in summer/autumn. Many estuaries in this region are closed by sand bars at their mouths until they are opened mechanically by humans or heavy rainfall periods where river flow and catchment run-off are significant, filling the estuaries and naturally opening the bars to the ocean (Bancroft et al., 1997).

Coastal areas on the South Coast, particularly near the mouths of estuaries, contain complex ecosystems made up of sedges, mudflats, and salt-adapted vegetation known as saltmarsh. Coastal saltmarsh vegetation is recognised nationally and globally as an ecosystem of high ecological value that is increasingly under threat from agriculture, urban and rural developments, changes to drainage and water quality and weed invasions (DoPW, 2016). These habitats occur generally between the elevation of the mean high tide and the mean spring tide and often occur in association with estuaries.

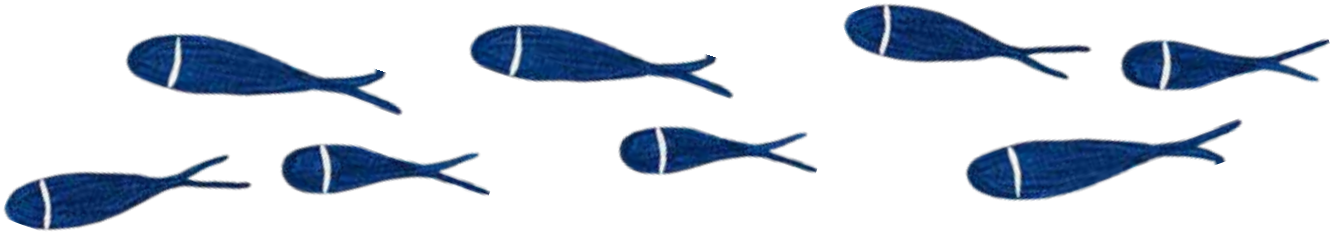
This community consists mainly of salt-tolerant vegetation (halophytes) including grasses, herbs, reeds, sedges and shrubs. Succulent herbs and grasses generally dominate, vegetation is generally <0.5m tall, except for some reeds and sedges. There is typically a high degree of endemism at the species level.

In most instances the catchments of the South Coast have undergone significant changes due to increased urban and agricultural practices. This has resulted in increased risk of adjacent streams, inlets and estuaries being subjected to the adverse effects of salinity, sedimentation, and eutrophication (Hodgkin & Clark, 1989). The catchments of the rivers and creeks that have been cleared for agriculture all show signs of salinity stress and erosion, therefore it can be assumed that their coastal inlets are receiving increased loads of nutrients and silt. Best practice sustainable agriculture has been a proven approach in reducing these risks.

Summary of management arrangements for estuarine, saltmarsh and mudflat communities	
Current status	• The majority of estuaries within the marine park are in altered states with increased levels of salinity, sedimentation and eutrophication. • The condition of saltmarshes and mudflats is largely unknown; however, it is likely they have been impacted by clearing, reducing their water and sediment quality.
Pressures	• Eutrophication from agricultural land clearing and loss of riparian buffer zones. • Physical disturbance (e.g. trampling, 4WD access). • Discharge of toxicants and physical and chemical stressors (i.e. sediment and nutrients from inlet outflow). • Marine debris/litter. • Construction of general marine infrastructure (e.g. navigation markers and jetties). • Potential ground-disturbing mining exploration/development. • Major pollution event (e.g. chemical or oil spill).
Current major pressure	Climate change.
Management objectives	To ensure that estuarine, saltmarsh and mudflat communities in the marine park are not significantly impacted by human activities.

		Management program	Priority
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Undertake and/or support culturally guided research to better understand sedimentation processes associated with estuaries and the pressures acting on them within the marine park.	Research	H
	2. Develop and support monitoring and research opportunities for assessing the health and relationship between marine and terrestrial ecologies in Wadarn Boodja.	Research and Monitoring	H
	3. Establish a collaborative approach with neighbouring land and water managers to address human activities that have the potential to significantly impact estuarine communities in the marine park [DPIRD].	Management framework	H
	4. Monitor the condition of estuarine communities and the pressures acting on them within the marine park under cultural leadership and with the Tjaltjraak Healthy Country Program team. [DPIRD]	Monitoring	H
	5. Seek to protect riparian vegetation from impacts associated with human use.	Management framework	H
	6. Educate users of the important cultural values and ecological role of estuarine communities and the potential impacts that human activities have on these communities. [DPIRD]	Education and interpretation	H
	7. Ensure that infrastructure developments are constructed to minimise the physical impacts to estuaries.	Management framework	As required
	8. Investigate the feasibility and impact of artificial estuary opening as part of ongoing Traditional Owner led management activities. [DWER]	Research	As required
	9. Develop integrated fish ecology projects linked to water quality health and improvements and customary practices. [DPIRD]	Research	H

Performance measures	Indicators to be developed but may include: • area of saltmarsh vegetation • nutrient water and sediment concentration • toxicant water and sediment concentration.
Target	• No significant decline in total cover of saltmarsh vegetation as a result of human activity in the marine park. • Decrease in nutrient and toxicant concentration in estuarine waters.
Reporting	2-3 years



5.4 Seagrass communities (KPI)

"Seagrass is a haven for our smaller fish—a food source and a habitat—it 'stabilises' the sand. If the seagrass is impacted, then the fish and habitats are too—and then none of us can catch a feed!"
Wudjari Elder

Seagrass communities are important benthic primary producers which provide many ecosystem services, including supporting biological productivity, carbon sequestration, fisheries, improving water quality and stabilising sandbanks (Nordlund et al., 2016). Seagrasses are influenced by changes in environmental conditions associated with water movement, nutrient availability, light and temperature (Bearham et al., 2013; Lee et al., 2007). In the marine park, they are important for providing structurally complex habitat for a diverse range of finfish and invertebrates.

Seagrasses in the marine park are highly diverse and include endemic and rare deep-water species. Seagrass species within the marine park include *Posidonia sinuosa*, *P. australis*, *P. denhartogii*, *P. coriacea*, *P. ostenfeldii*, *P. kirkmanii*, *Amphibolis griffithii*, *A. antarctica*, *Halophila* spp. and *Zostera tasmanica* (Kendrick et al., 2005). Of the approximately 72 seagrass species known worldwide, almost one-third are restricted to southern Australia (Short et al., 2011; Carruthers et al., 2007). There is a high level of endemism on the south-west coast of Australia with approximately half of the 19 seagrass species found there being endemic to the area (Carruthers et al., 2007; Kendrick et al., 2005; Kuo & McComb, 1989). Due to the exceptionally clear water on the South Coast, seagrasses can grow at depths below 40m (Kirkman & Kuo, 1990; Kilminster et al. 2018), with evidence of sparse *Halophila* spp., *Zostera tasmanica* and *P. ostenfeldii* complex growing in deep (42m) protected areas adjoining islands (Kendrick et al., 2005). Seagrass meadows growing in temperate zones, such as the South Coast, may also act as thermal refugia populations for those that are impacted by marine heatwaves and rising seawater temperatures further north.

Dense seagrass areas are typically found on protected lee sides of headlands and offshore island groups in depths of less than 30m, as well as in coastal bays from Victoria Harbour to Alexander Bay.

"Seagrass plays such an essential role in our marine environment."
Wudjari Elder

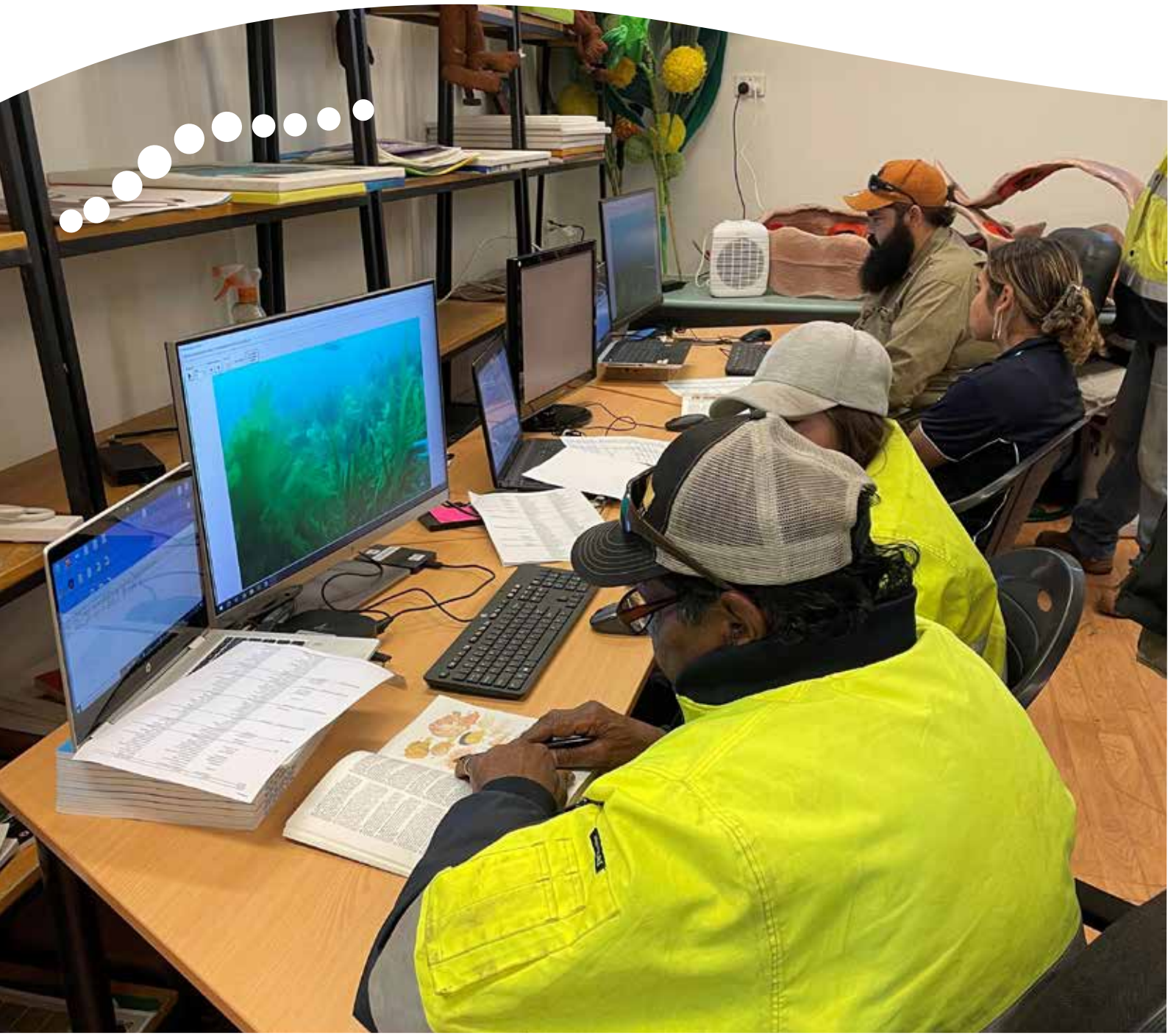
While no seagrass species are listed as threatened in Western Australia, there is one listed priority ecological community — *Posidonia australis* complex seagrass meadows [Priority 3(i)] (Threatened Species Scientific Committee, 2013). The priority ecological community consists of the assemblage of flora, fauna and micro-organisms associated with the seagrass meadows (dominated by *Posidonia australis*).

Seagrass (and macroalgae, see section 5.5) that detach from reefs often accumulate on the shoreline, seabed and water surface where it is known as wrack. When wrack is washed onto shorelines it supports the structure and function of ecologically significant sandy beaches and surf zones by stabilising dynamic coastlines, supporting coastal food webs and nutrient breakdown flowing back into the surf zone (Hyndes et al., 2022). Furthermore, wrack contains large invertebrate communities which surf zone fish and birds prey upon

(Muhling & Ryan, 2002). Consequently, the removal of wrack from the marine park will be strictly managed and only considered where public access or safety is significantly impeded.

Seagrasses are susceptible to increased nutrient levels, which can increase epiphytic loads on seagrass leaves and/or increased phytoplankton in the water column that reduces the amount of light available for photosynthesis. Other potential threats to seagrasses in the marine park include climate change (e.g. extreme climatic events, gradual warming), unregulated anchoring and the construction of marine and coastal infrastructure.

Seagrasses are protected throughout the State under the BC Act and the FRM Act. Development proposals that may impact on seagrass communities are subject to an environmental impact assessment under the requirements of the EP Act.



Processing BRUVS Footage from Middle Island. Courtesy of David Guilfoyle/ETNTAC

Summary of management arrangements for seagrass communities	
Current status	Seagrasses are generally in good condition within the marine park.
Pressures	• Unregulated mooring and anchoring that cause scouring in seagrass dominated areas. • Construction of general marine infrastructure (e.g., navigation markers and jetties). • Commercial and recreational fishing (e.g., damage to habitat). • Potential ground-disturbing mining exploration/development. • Discharge of toxicants and physical and chemical stressors (i.e., sediment and nutrients from inlet outflow). • Large scale coastal developments such as groynes, marinas and ports (both current and future projects). • Sewage discharge from vessels. • Pest/disease. • Major pollution event (e.g., chemical or oil spill). • Potential sand mining, dredging and other sand bypassing works.
Current major pressure	Climate change (e.g., marine heatwaves, increasing sea surface temperature)
Management objectives	• To ensure seagrass communities are not significantly impacted by human activities. • To gain an increased understanding of the seagrass communities in the marine park to facilitate long-term management

		Management program	Priority
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Undertake and/or support research to characterise the diversity, density, abundance, and distribution of seagrass communities in the marine park, including public participation and monitoring programs.	Research	M
	2. In partnership with adjoining land and water managers, monitor the condition of seagrass communities and the pressures acting on them within the marine park, and address as required.	Monitoring	M
	3. Educate users of the important cultural values and ecological role of seagrass communities and the potential impacts of human activities, particularly vessel mooring, and nutrient and pollution inputs on these communities and the biodiversity values of wrack. [DPIRD]	Education and interpretation	H
	4. Liaise with adjacent landowners and regulatory authorities to provide authorisation for wrack removal where required for public access or safety.	Management intervention and visitor services	As required
	5. Establish a collaborative approach with neighbouring land and water managers to address human activities that have the potential to significantly impact on seagrass communities in the marine park.	Management framework	H

Performance measures	Indicators to be developed but may include: • percent cover • community composition.
Target	• No significant decline in total cover as a result of human activity. • No significant change in community composition as a result of human activity.
Reporting	3-5 years

5.5 Macroalgae and rhodolith communities (KPI)

The southern coast of Australia has one of the highest levels of species richness and endemism of macroalgae in the world, with around 1,000 species of benthic macroalgae identified in the region, of which 62 percent are endemic to the South Coast (Entwisle & Huisman, 1998; Kerswell, 2006; McClatchie et al., 2006; Phillips, 2001; Wormersley, 1990).

The distribution and abundance of macroalgae species on the South Coast is not recorded in detail, however, a broad picture has been formed. The golden kelp (*Ecklonia radiata*), which often forms dense beds in the shallow sublittoral zone, is the dominant algae along the South Coast (CALM, 1994; McClatchie et al., 2006). Other common brown algae include *Cystoceira*, *Scytothallia*, *Cystophora* and *Hormosira banksii*. Conspicuous green algae include various species of *Caulerpa*, while red algae are represented by several temperate species (CALM, 1994). Results from surveys by Goldberg and Kendrick (2005) identified a geographical transition from kelp dominated areas to the west, into a fucalean-dominated assemblage (i.e., sargassum) in the Recherche Archipelago and further east. The Leeuwin and Capes currents strongly influence the distribution of macroalgae along the south-western and southern coasts of Australia (McClatchie et al., 2006).

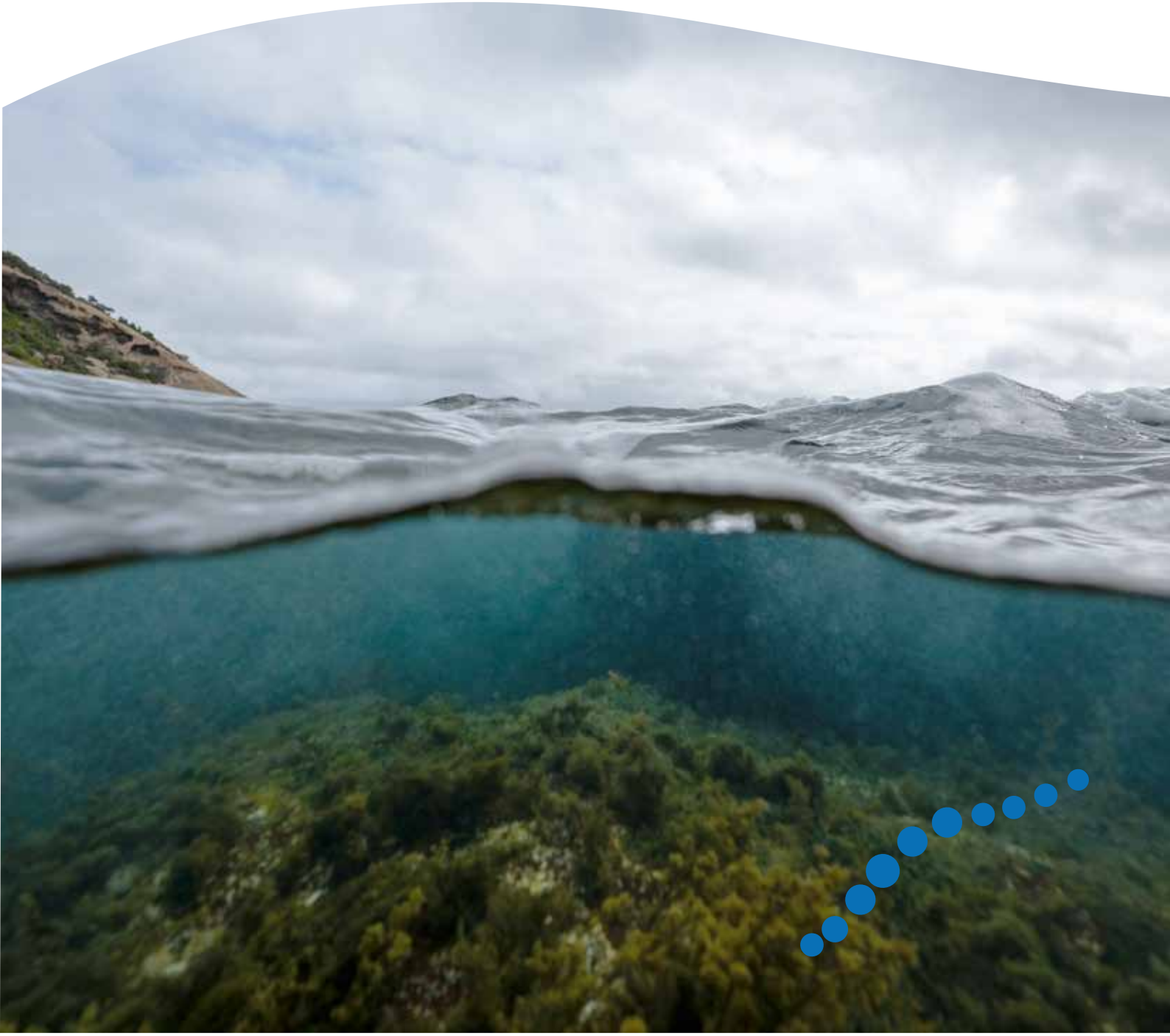
A total of 242 macroalgal species were recorded around the western islands of the Recherche Archipelago at varying levels of depth and exposure (Goldberg & Kendrick, 2005). A total of 254 species were recorded from Black Island, consisting of canopy, understory, and epiphytic species (Goldberg, 2005). A total of 198 macroalgal species were recorded at Woody Island, Esperance Bay (Goldberg, 2007).

Rhodoliths are unattached, marine, benthic algal nodules of various sizes, that are predominantly accreted by crustose coralline red algae precipitating calcium carbonate within their cell walls (Foster, 2001). Rhodolith beds are a unique substrate and functional habitat which support a high biodiversity of associated organisms, including macroalgae, filter feeding communities and fish (Kendrick et al., 2005).

A regional summary of Australian rhodoliths identified the Wudjari Marine Park as an area with globally significant rhodolith distribution (Harvey et al., 2017). Eight species of rhodolith are known to occur in Australian waters, with only two species identified in Western Australia, namely *Lithophyllum stictaforme* and *Neogoniolithon brassica-florida* (Harvey et al., 2017). Rhodolith beds were found to be widespread throughout the western Recherche Archipelago, mainly in high energy environments between islands and in open offshore waters, in depths between 27–90m. Some beds were as large as 9,000ha and over 25km wide (Kendrick et al., 2005). It is unknown how common this habitat type is along the South Coast, although it has been suggested that significant rhodolith beds are likely to stretch between the Recherche Archipelago and Twilight Cove (Sutton & Day, 2021). Kendrick et al. (2005) estimated a 17 percent cover of rhodolith habitat within the Recherche Archipelago, which forms one of only three locations in Australian where the extent of rhodolith beds has been established in high resolution benthic surveys (Harvey et al., 2017).

Macroalgae and rhodolith communities are susceptible to several impacts including heatwaves and warming ocean temperatures due to climate change. Rhodolith beds are particularly susceptible to the impacts of ocean acidification due to their magnesium-calcite skeletons. Macroalgae and rhodolith communities can also be impacted by physical disturbance such as from anchoring, hydrodynamic forces (e.g., swell), infrastructure and some fishing methods (Burnett & Koehl, 2022).

Macroalgae and rhodoliths are protected throughout the State under the BC Act and the FRM Act. In addition, development proposals that may impact on macroalgae communities are subject to an environmental impact assessment by the EPA.



Courtesy of Andy McGregor/ETNTAC

Summary of management arrangements for macroalgae and rhodolith communities			
Current status	Macroalgae and rhodolith communities are generally in good condition within the marine park.		
Pressures	• Unregulated mooring and anchoring that cause scouring in macroalgal dominated areas. • Construction of general marine infrastructure (e.g., navigation markers and jetties). • Commercial and recreational fishing (e.g., damage to habitat). • Potential ground-disturbing mining exploration/development. • Discharge of toxicants and physical and chemical stressors (i.e., sediment and nutrients from inlet outflow). • Large scale coastal developments such as groynes, marinas and ports (both current and future projects). • Sewage discharge from vessels. • Pest/disease. • Major pollution event (e.g., chemical or oil spill). • Potential sand mining, dredging and other sand bypassing works.		
Current major pressure	Climate change		
Management objectives	To ensure the diversity, cover and condition of macroalgae and rhodolith communities are not significantly impacted by human activity in the marine park.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Undertake and/or support research to characterise the diversity, community composition and condition of macroalgae and rhodolith communities and increase their resilience in the marine park.	Research	M
	2. Monitor the condition, diversity and cover of macroalgae and rhodolith communities and the pressures acting on them within the marine park and address as required.	Monitoring	M
	3. Educate marine park users about the ecological importance of the marine park's macroalgae and rhodolith communities and the potential detrimental impacts of physical disturbance on these communities.	Education and interpretation	H
	4. Establish a collaborative approach with neighbouring land and water managers to address human activities that have the potential to significantly impact on macroalgae and rhodolith communities in the marine park.	Management framework	H
Performance measures	Indicators to be developed but may include: • percent cover • community composition • macroalgae density (canopy forming species).		
Target	• No significant decline in cover of macroalgae and rhodoliths as a result of human activity. • No significant decline in density of macroalgae as a result of human activity. • No significant change in community composition of macroalgae and rhodoliths as a result of human activity.		
Reporting	3-5 years		

5.6 Subtidal soft-sediment communities

"The white sands of Kepa Kurl and beyond are part of our identity and cultural heritage. We know them as kwongkan—vibrant, shiny sands, great plains—that support all our cultural plants and animals. Much of the sand plains of our old people are now submerged, our beaches and bays."
Wudjari Elder.

Soft sediment habitats typically occur in sheltered areas where sediments formed by the erosion of cliff faces, limestone and skeletal fossil fragments in sedimentary rocks build up due to the high energy of the South Coast (Sutton & Day, 2021). Marine habitats made up of soft sediments form most of the Eucla Bioregion benthic environment (CALM, 1994; Dutkiewicz et al., 2015) and make up approximately 28 percent of the marine benthic environment within the Recherche Archipelago (Sutton & Day, 2021).

Soft sediment environments along the South Coast of Western Australia are known to host distinct infauna and epifauna communities (Sutton & Day, 2021), however, there is little information available on the condition of these communities within the marine park. Some species important to commercial and recreational fishing, such as the southern saucer scallop (*Ylistrum balloti*), tend to occur in pockets of high abundance within soft sediment environments.

Wudjari connect submerged sandy systems with the sand dune systems that characterise their coastlines, and part of the Kwongkan substrate (shiny sands) that define much of their cultural landscape. In places, deep sands cover ancient landscapes such as wetlands and granite outcrops — features of the ancient Wudjari coastal plain.

Threats to subtidal soft sediment communities include climate change, unregulated mooring and anchoring, the construction of marine infrastructure, commercial fishing, particularly bottom trawling and nutrient and toxicant input. Due to the low level of industrial and coastal development in the marine park and limited size and restrictions on the South Coast Trawl Fishery it is likely that these communities are in an undisturbed condition (SCRMPWG, 2010).

Summary of management arrangements for subtidal soft-sediment communities			
Current status	Limited information is available, however, subtidal soft-sediment communities within the marine park are believed to be in generally good condition.		
Pressures	• Construction of general marine infrastructure (e.g., navigation markers and jetties). • Climate change. • Commercial and recreational fishing (e.g., damage to habitat). • Potential ground-disturbing mining exploration/development. • Discharge of toxicants and physical and chemical stressors (i.e., sediment and nutrients from inlet outflow). • Large scale coastal developments such as groynes, marinas and ports (both current and future projects). • Sewage discharge from vessels. • Pest/disease. • Major pollution event (e.g., chemical or oil spill). • Potential sand mining, dredging and other sand bypassing works.		
Current major pressure	None currently identified.		
Management objectives	To ensure the species diversity and biomass of subtidal soft-sediment communities within the marine park are not significantly impacted by human activities.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Undertake and/or support research to better characterise the cultural values and places related to subtidal soft-sediment communities and submerged cultural places.	Research	H
	2. Undertake and/or support research to better characterise the flora, fauna and distribution of subtidal soft-sediment communities within the marine park.	Research	M
	3. Monitor the condition of subtidal soft-sediment communities and the pressures acting on them within the marine park. [DPIRD]	Monitoring	H
	4. Educate users of the important cultural values and ecological role of subtidal soft-sediment communities and the potential impacts that human activities have on these communities. [DPIRD]	Education and interpretation	H
Performance measures	Indicators to be developed but may include: • diversity • species abundance.		
Target	No significant decline in diversity or species abundance as a result of human activity.		
Reporting	3-5 years		

5.7 Filter feeder communities

Filter feeder communities are comprised of species such as sponges, bryozoans, sea squirts and sea anemones. They are generally located in areas that have strong water currents and hard substratum.

The Recherche Archipelago is known to support a high diversity of marine invertebrates (McDonald & Kendrick, 2005). Sponge gardens found throughout the Archipelago are made up of diverse communities of sponges, soft corals, ascidians, bryozoans and hydroids. A total of 409 species of sponges were identified in three sampling locations within the Recherche Archipelago, with representatives from 11 of the 15 currently recognised orders of Demospongiae (McDonald & Kendrick, 2005). The sponge fauna found in the Recherche Archipelago represents approximately 20 percent of the described species in Australia (McDonald & Kendrick, 2005).

These animals provide a habitat that supports many organisms including commercially targeted fish, crustacean and mollusc species. Wells et al. (2003) identified 27 species, including six newly described hydroid species at depths between 4–25m at offshore islands of the Recherche Archipelago. The ranges of 23 species previously known to occur in waters off South Australia have been extended to waters west of the Great Australian Bight (Wells et al., 2003).

Very few coral species are found within the marine park. Coral fauna diminishes rapidly south of Rottnest Island with some species flourishing in a few suitable habitats along the South Coast of Western Australia (Veron & Marsh, 1988). Corals represented only two percent of the cnidarian taxa collected and examined from a survey carried out within the Recherche Archipelago (Kendrick et al., 2005).

In the Wudjari Marine Park, coral communities are generally found in the moderately sheltered waters of the Recherche Archipelago (Veron & Marsh, 1988). Hard corals occur sporadically, but do not form coral reefs (Wells et al., 2005). Veron & Marsh (1988) reported seven species from four genera that occur along the South Coast of Western Australia including *Coscinaraea mcneilli, Coscinaraea marshae, Plesiastrea versipora, Scolymia australis* and three species of *Turbinaria*, the latter of which cover extensive areas in the Recherche Archipelago. *Australophyllia wilsoni* (previously *Symphyllia wilsoni*) and *Favites* sp. have been found as beach worn specimens on the South Coast. James et al. (1994) also identified four ahermatypic (non-reef building) coral species, including *Scolymia australis*, *Monomyces radiatus*, *Flabellum pavoninum* and a *Charyophillia* sp. from a single dredge that scoured the seafloor between 180–250m deep.

Globally, filter feeder communities are susceptible to several threats, including heatwaves and warming ocean temperatures due to climate change, hydrodynamic forces, some fishing methods, unregulated anchoring and the construction of marine infrastructure. Due to the low level of industrial and coastal development in the marine park and management of the South Coast Trawl Fishery it is likely that these communities are in relatively undisturbed condition (SCRMPWG, 2010).

Summary of management arrangements for filter feeder communities			
Current status	Limited information is available on filter feeder communities, but they are believed to be in generally good condition throughout the marine park.		
Pressures	• Commercial fishing (e.g., bottom trawling). • Unregulated anchoring. • Climate change. • Discharge of toxicants and physical and chemical stressors (i.e., sediment and nutrients from inlet outflow). • Potential sand mining, dredging and other sand bypassing works. • Large scale coastal developments such as groynes, marinas and ports (both current and future projects). • Construction of general marine infrastructure (e.g., navigation markers and jetties). • Potential ground-disturbing mining exploration/development. • Pests/disease. • Major pollution event (e.g., chemical or oil spill).		
Current major pressure	None currently identified.		
Management objectives	• To ensure that filter feeder communities within the marine park are not significantly impacted by human activities. • To develop an increased understanding of the distribution and diversity of filter feeder communities in the marine park.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Undertake and/or support research to characterise the diversity, community composition and condition of filter feeder communities in the marine park. 2. Monitor condition of filter feeder communities and the pressures acting on them within the marine park. [DPIRD] 3. Educate marine park users about the ecological importance of the marine park's filter feeder communities and the potential detrimental impacts of physical disturbance (e.g., anchoring) on these communities. [DPIRD]	Research Monitoring Education and interpretation	M M H
Performance measures	Indicators to be developed but may include: • diversity • total cover • community composition • introduced species.		
Target	• No significant decline in diversity or total cover as a result of human activity. • No significant change in community composition as a result of human activity. • No significant change in the abundance of introduced species as a result of human activity.		
Reporting	3-5 years		

5.8 Invertebrates

"When our Elders are once again harvesting shellfish for the estuary, we know that our efforts are working, Country is healing, our community is healing."
Wudjari Elder

Marine invertebrates are animals without a backbone, such as sea urchins, starfish, sea cucumbers, crabs, lobsters, octopus, abalone, jellyfish and anemones. Invertebrates have important functions within the ecosystem as a food source for other invertebrates, finfish and migratory birds, as well as in nutrient cycling. Invertebrate communities in the marine park exhibit high levels of endemism and consist of both tropical and temperate species. Invertebrates can be found across a wide variety of habitats and depths in the marine park, including intertidal platforms, subtidal marine soft sediments (infauna and epifauna), subtidal estuarine soft sediments, subtidal reefs and in pelagic waters.

The relatively high levels of endemism and biodiversity in southern Australian waters can be attributed to the continent's long period of geological isolation (>65 million years), the unusually large width of the continental shelf, and the characteristically low nutrient status of Australia's southern coastal waters (McClatchie et al., 2006; Poore, 1995). The presence and distribution of invertebrates within the marine park is influenced by substrate, depth, availability of food and the temperature gradient produced by the Leeuwin Current.

"Wamap nurtures her babies until they are big enough and strong enough to go out to the ocean. In this way, wamap teaches people to nurture their children and family."
Wudjari Elder

While specific species ranges within the marine park are unknown, approximately 347 species of temperate Australian echinoderms are known to occur across the South Coast from Albany to Eucla; 115 species of decapod crustaceans are known to occur between Cape Naturaliste and the South Australian and Western Australian border; and 347 species of marine molluscs (15 chitons, 273 gastropods, 49 bivalves, six cephalopods and four scaphopods) occur within Esperance Bay and the Recherche Archipelago.

Many marine invertebrates formed and continue to be a major component of Wudjari subsistence that in turn links to community identity, health and wellbeing. The process of procuring these species as food is also part of Wudjari family and community life.

Invertebrates are vulnerable to impacts from climate change and overfishing. Commercial and recreational fisheries target species including the southern rock lobster (*Jasus edwardsii*), southern saucer scallop (*Ylistrum balloti*), greenlip abalone (*Haliotis laevigata*), brownlip abalone (*H. conicopora*), Roe's abalone (*H. roeii*) and a variety of specimen shell. In addition, bioprospecting, fisheries bycatch and pollution may impact invertebrates.

DPIRD is responsible for the management of the recreational and commercial take of invertebrate species under the FRM Act. DPIRD's management occurs across bioregions, zones within bioregions, at a resource level and in some cases at a smaller scale where fisheries operate within restricted areas. Noting the scale of management may not be at the marine park scale (Newman et al. [2023] notes a bioregional scale for most fisheries in Western Australia), populations of some species in a reserve could become locally depleted even when the fishery and resource is being managed at a sustainable level.

Invertebrates also form part of the marine environment's overall biodiversity and are therefore managed by DBCA under the CALM Act as one of the numerous ecological values within the marine park.

Summary of management arrangements for invertebrates	
Current status	Invertebrates are generally considered to be in good condition in the marine park.
Pressures	• Climate change. • Pests/disease. • Discharge of toxicants and nutrients from storm water. • Vessel discharge (e.g., sewage and ballast water). • Physical disturbance (e.g., trampling). • Aquaculture (e.g., habitat exclusion, discharges). • Habitat degradation. • Potential ground-disturbing mining exploration/development. • Large scale coastal developments such as groynes, marinas and ports (both current and future projects). • Potential sand mining, dredging and other sand bypassing works. • Illegal fishing.
Current major pressure	Commercial and recreational fishing for targeted species.
Management objectives	• To ensure non-targeted species are not significantly impacted by human activities within the marine park. • To manage targeted invertebrate species for ecological sustainability.

Tjaltjraak rangers and Elders undertaking estuary health management. Courtesy of Xavier Leenders/ETNTAC

		Management framework	Priority
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. See section 9.3 – Zoning and permitted activities. 2. See section 6.2 – Recreational fishing. 3. See section 6.3 – Commercial fishing. 4. Undertake and/or support research to characterise the diversity, abundance, distribution and habitat requirements of invertebrates within the marine park. [DPIRD for targeted species, at an appropriate scale for the relevant stocks] 5. Monitor the condition of invertebrates and the pressures acting on them within the marine park and take remedial action if required. [DPIRD for targeted species] 6. Educate users of the marine park about the cultural value and ecological importance of invertebrates (including shells), ways to minimise disturbance to them and relevant fisheries regulations that apply. [DPIRD] 7. Undertake and/or support research to characterise the sustainability of targeted invertebrate species and the consequences of their removal. **[DPIRD]** 8. Provide updates to marine park managers in relation to management of recreational and commercial fisheries, including reviews and amendments where relevant to the marine park. **[DPIRD]** 9. Investigate the feasibility of potential restoration of invertebrate habitats and populations. [DPIRD]	Research Monitoring Education and interpretation Research Management framework Research	H H M H H M
Performance measures	Indicators to be developed but may include: • diversity • target species abundance • community composition.		
Target	**Sanctuary zones** • No significant decline in diversity and abundance as a result of human activity. • No significant change in community composition as a result of human activity. **General use zones and special purpose zones** • No significant decline in community diversity as a result of human activity. • No significant change in community composition as a result of human activity. • No significant change in target species abundance beyond ecologically sustainable levels as a result of human activity (to be determined in consultation with DPIRD).		
Reporting	3-5 years		

5.9 Finfish, sharks and rays (KPI)

Many fish species form part of the cultural heritage of Wudjari and feature in stories, events, ceremony, as well as forming part of kinship and cultural connection.

"The Wudjari come to this place—Mandooweerinup—when it's hot, and the salmon are running, and the moodjah trees are flowering. The Wudjari call the dolphins by banging on the ground. The dolphins sense the Wudjari and come close to them. The dolphins help to round up the salmon and bring them closer to the shore for the Wudjari—and they also get a feed for themselves. It is customary for the first fish caught to be thrown back to the ocean—as a sign of gratitude and respect. We use paperbark to cook the fish in the coals. These practices have been passed down through generations from our old people."
Wudjari Dolphin Dreaming as told by a Wudjari Elder

Fish communities of south-western Australia boast a remarkable diversity with many endemic species (Hutchins, 2001; Thomson-Dans et al., 2003). The region is considered a hotspot for the discovery of species new to science (Stiller et al., 2015). The effect of the Leeuwin Current extends the range of many subtropical fish species into temperate areas of the southern coastline of Australia (Kendrick et al., 2009). The Wudjari Marine Park encompasses a unique fish assemblage that is not represented within other marine parks (Goldsworthy et al. 2020).

The white shark (*Carcharodon carcharias*) is listed as Vulnerable under both the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and BC Act, and is protected under the FRM Act. Most of the South Coast of Western Australia is recognised as a biologically important area for white sharks and it is suggested that the Recherche Archipelago may also be a nursery area for white sharks, following the observation of a juvenile near Salisbury Island (Sutton & Day 2021), however, this requires further investigation. The South Coast shoreline that extends from east of Esperance through to the Western Australian–South Australian border is a significant nursery area for Australian salmon (*Arripis truttacea*) and Australian herring (*Arripis georgianus*) (Gaughan & Santoro, 2020). Both species are important to the commercial fishing sector in the South Coast region of Western Australia.

The three species of seadragon endemic to Australia are all found along the South Coast, including the leafy seadragon (*Phycodurus eques*), weedy seadragon (*Phyllopteryx taeniolatus*) and ruby seadragon (*Phyllopteryx dewysea*). Leafy and weedy seadragons are protected under the FRM Act (DPIRD, 2021). The ruby seadragon was only described as a new species in 2015, so little is known about its distribution. The intrinsic, non-consumptive value of these, and other, species to Australia's tourism economy has been repeatedly highlighted (e.g., Green & Kerr 2020; Farr et al., 2014). This is because, when tourists and locals travel across Australia, they often do so with the expectation of seeing wildlife. In Western Australia, diving with the iconic whale shark at Ningaloo and snorkelling with dolphins at Monkey Mia are both key sources of ecotourism, contributing around $12.5 and $30 million, respectively, to local economies each year (Huveneers et al., 2017; Catlin

& Jones 2010; Smith et al., 2006). Species such as the blue groper and leafy seadragon thrive in marine parks and present a significant, but untapped, tourism potential for Western Australia (Caitlin et al., 2014; de Mitcheson & Liu, 2022; Kardi & Wiasta, 2019). The primary pressures on finfish are extraction by commercial and recreational fishing (targeted removal and bycatch). Other threats include climate change, marine debris, introduction of marine pests and habitat damage.

DPIRD is responsible for managing recreational and commercial take of finfish, shark and ray species under the FRM Act. DPIRD's management occurs across bioregions, zones within bioregions, at a resource level and in some cases at a smaller scale where fisheries operate within restricted areas. Noting the scale of management may not be at the marine park scale (Newman et al. [2023] notes a bioregional scale for most fisheries in Western Australia), populations of some species in a reserve could become locally depleted even when the fishery and resource is being managed at a sustainable level.

Finfish, sharks and rays also form part of the overall biodiversity and are therefore managed by DBCA under the CALM Act as one of the numerous ecological values within the marine park.

Summary of management arrangements for finfish, sharks and rays	
Current status	Finfish, sharks and rays are generally considered to be in relatively good condition within the marine park.
Pressures	• Climate change. • Marine debris (e.g., entanglement, ingestion). • Introduction of marine pests. • Feeding. • Mooring and anchoring – habitat damage. • Toxicants (e.g., marina or vessel discharge, untreated wastewater or stormwater). • Potential sand mining, dredging and other sand bypassing works. • Vessel discharge (e.g., sewage). • Large scale coastal developments such as groynes, marinas and ports (both current and future projects). • Aquaculture (e.g., habitat exclusion, entanglements, discharges). • Vessel noise and strike. • Major pollution events (e.g., oil or chemical spill).
Current major pressure	Recreational and commercial fishing (e.g., direct removal and bycatch).
Management objectives	• To ensure non-targeted species are not significantly impacted by human activities within the marine park. • To manage targeted species for ecological sustainability.

		Management program	Priority
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. See section 9.3 – Zoning and permitted activities. 2. See section 6.2 – Recreational fishing. 3. See section 6.3 – Commercial fishing. 4. Identify knowledge gaps and undertake and/or promote research programs to characterise finfish, shark and ray diversity, abundance, biomass and behaviours within the marine park, and conduct research to understand the ecological role of targeted finfish species and the consequences of their removal. [DPIRD for targeted species] 5. Monitor the biodiversity, current health and abundance of finfish, sharks and rays and the pressures acting on them in the marine park. [DPIRD for targeted species] 6. Undertake research on seadragons, investigating their behaviours, population numbers, ecological relationships and threats. 7. Educate users about recreational fishing rules, the ecological importance of finfish, sharks and rays and responsible fishing behaviour. [DPIRD] 8. Provide updates to marine park managers in relation to management of recreational and commercial fisheries, including reviews and amendments where relevant to the marine park. **[DPIRD]** 9. Educate users about the cultural stories of fish and the interrelationships with seasons, plants and practices (for example Wudjari Dolphin Dreaming—seasons—moodjah flowering—salmon—respect—subsistence).	Research Monitoring Research Education and interpretation Management framework Education and interpretation	H H M H M H
Performance measures	Indicators to be developed but may include: • diversity • species abundance • species size distribution • community composition.		
Target	**Parkwide** • No significant loss in diversity or abundance of protected species as a result of human activity. **Sanctuary zones** • No significant decline in diversity, species abundance or species size distribution as a result of human activity. • No significant change in community composition as a result of human activity. **General use and special purpose zones** • No significant decline in abundance of non target species or species diversity as a result of human activities. • No significant change in community composition as a result of human activity. • No significant change in target species abundance or target species biomass beyond ecologically sustainable levels as a result of human activity (to be determined in consultation with DPIRD).		
Reporting	3-5 years		

5.10 Seabirds and shorebirds (KPI)

Wudjari people once managed seabirds (especially yowli/mutton birds) as a sustainable food source, however, with land clearing and the introduction of feral animals, most seabird colonies are now located on offshore islands which are difficult to access. The Tjaltjraak Seabird Monitoring Program is part of the cultural revitalisation of managed subsistence that links to ecological management. As apex predators, seabirds have been consistently shown to be reliable indicators of the overall health of marine ecosystems. Therefore, the study and management of seabird colonies can inform the evaluation of marine park management. This program is a key, long-term feature of culturally guided research that links to a more holistic management process for Sea Country.

Most seabirds are highly pelagic, foraging at sea for the greater part of their lives. The movements of very few seabird species have been tracked in southern Western Australia, with the exception of the flesh-footed shearwater (*Ardenna carneipes*), which migrates to the Bay of Bengal during the winter months (Lavers et al., 2018). In contrast, shorebirds commonly feed by wading in shallow water or along the shoreline. The sandy beaches, intertidal reef platforms and rocky outcrops of the marine park provide an important feeding, roosting and nesting habitat for seabirds and shorebirds.

Of the 110 species of seabirds that comprise the Australian seabird fauna, 81 can be found in the south-west region of Australia (McClatchie et al., 2006). The region also contains some of the most significant and diverse seabird breeding islands within Australian territorial waters (McClatchie et al., 2006).

Important breeding and nesting habitats for seabirds in the area include those in the Recherche Archipelago, which has been identified by Birdlife International as an Important Bird Area (McClatchie et al., 2006, Dutson et al., 2009). The south-western population of the flesh-footed shearwater, which is listed as a Vulnerable species under the BC Act, nests on islands between Cape Leeuwin and the South Australian border (Lavers, 2018). The Recherche Archipelago is home to around 45 percent of the world's breeding population of this species, and also provides important nesting habitat for other breeding populations of poorly studied seabirds, for example, white-faced storm petrel (*Pelagodroma marina*) and shorebirds. The archipelago supports the westernmost population of short-tailed shearwaters (*Ardenna tenuirostris*) and the only breeding population of great-winged petrels (*Pterodroma macroptera*) in Australia, with birds from this region shown to be at risk from exposure to persistent organic pollutants (POPs; Gilmour et al., 2021). Flesh-footed shearwaters are also at risk from chemical pollutants, with the concentration of cadmium in their feathers increasing by 1.5 percent per year since the early 1900s (Bond & Lavers, 2020).

Climate change also poses a risk to these birds, with substantial changes in trophic niche and trophic level recorded in Western Australian shearwaters over the past 75 years (Bond & Lavers, 2014). Their breeding sites are also at risk, with frequency of bushfires on breeding islands predicted to increase due to dry lightning strikes associated with drought and global warming (Lavers et al., 2022). There is also growing concern regarding the conservation status of Pacific gull (*Larus pacificus*) populations in south-west Western Australian (Birdlife Australia, 2021). Beaches along Western Australia's South Coast provide important nesting habitat for shorebird species, such as the fairy tern (*Sterna nereis nereis*) and hooded plover (*Thinornis cucullatus*), both of which are listed as Vulnerable.

Other threatened and endangered seabird and shorebird species found on the South Coast include:

- northern rockhopper penguin (*Eudyptes moseleyi*)
- wandering albatross (*Diomedea exulans*)
- grey-headed albatross (*Diomedea chrysostoma*)
- black-browed albatross (*Diomedea melanophris*)
- northern giant petrel (*Macronectes halli*).

The status of seabirds and shorebirds in the marine park is species dependent. Modelled estimates show a decline in the abundance of eastern curlew (*Numenius madagascariensis*) and ruddy turnstone (*Arenaria interpres*) around the Recherche Archipelago, and areas of increased and decreased abundance for red-necked stints and sooty oystercatchers depending on location (Clemens et al., 2016). The Cape Barren goose (*Cereopsis novaehollandiae grisea*), which breeds on the islands of the Recherche Archipelago, is listed as Vulnerable under the EPBC Act and BC Act (Lee & Bancroft, 2001). The population diminished by nearly half in 1991 when six months of drought and hot weather caused a shortage of available food. Surveys carried out in 1993 showed that the population had recovered; however, there is no new information on the population (Comer & Garnett, 2021) and the species is still listed as Vulnerable under the EPBC Act.

The decline in some species of seabirds (including both short-tailed and flesh-footed shearwaters) and shorebirds is caused by a variety of factors, many of which are synergistic, meaning their effects accumulate, including overfishing of the prey that seabirds rely on for food (Bond & Lavers, 2014), entanglement in fishing gear, plastic pollution (for example, up to 90 percent of flesh-footed shearwaters from Western Australia contain plastic (Lavers & Bond, 2016)), introduction of non-native predators to seabird colonies, destruction and changes to seabird habitat, and environmental and ecological changes caused by climate change (Bond & Lavers, 2020).

In July 2021, DPIRD convened an ecological risk assessment (ERA) of the fisheries that access the Small Pelagic Scalefish Resource including the West Coast Purse Seine Fishery, South Coast Purse Seine Fishery, Purse Seine Development Zones (PSDZ) and recreational fishers (Blazeski et al., 2021). A medium/high risk was given to flesh-footed shearwaters due to the potential interaction with purse seine nets and uncertainty associated with population modelling and fishery-dependent data. In 2023, the Western Australian purse seine fishery was awarded funding to undertake trials to identify methods to reduce seabird interactions (DCCEEW, 2023), however, seabird bycatch in South Coast fisheries remains a serious issue that will require further research and mitigation. For example, off Albany, at least 170 adult, breeding birds are drowned in nets each year (Lavers, 2015; Norriss et al., 2020). Annual survival of this species is one of the lowest recorded for any seabird worldwide (Lavers et al., 2018), and this corresponds with advice from local Traditional Owners who consistently report shearwaters are no longer observed in areas where they were once common. A voluntary Code of Practice in the South Coast Purse Seine Managed Fishery (SCPSMF) has been put in place to reduce interactions between the SCPSMF and protected species including flesh-footed shearwaters.

The national Threat Abatement Plan for the incidental catch of seabirds during oceanic longline fishing operations (2018), has been developed and implemented (Commonwealth of Australia, 2018). All seabird species and their eggs are protected under State and Federal Government legislation.

Summary of management arrangements for seabirds and shorebirds			
Current status	Several seabird and shorebird species known to occur on the South Coast are listed as threatened or are declining.		
Pressures	• Entanglement in and ingestion of marine debris. • Introduction of non-native predators to seabird colonies. • Climate change (e.g., increasing water temperatures affecting prey availability, sea level rise affecting habitat; dry lightning, drought, bushfires and other alterations to habitat on islands). • Disturbance to feeding, roosting and nesting activity by people, vehicles, vessels, low flying aircraft (including remotely piloted aircraft). • Commercial fishing (e.g., bycatch). • Infrastructure development. • Large scale coastal developments (e.g., loss or degradation of habitat). • Major pollution event (e.g., oil or chemical spill). • Removal of sea wrack from beaches (important for foraging birds).		
Current major pressure	None currently identified.		
Management objectives	To ensure that the abundance and diversity of seabirds and shorebirds in the marine park are not significantly impacted by human activity.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Monitor human impacts to seabird and shorebird breeding and feeding habitat and regulate if required.	Monitoring	H
	2. Design and implement an education and interpretation program that increases the public's awareness of the national and international significance of waterbird populations and informs visitors about impacts human activities can have on birds.	Education and interpretation	H
	3. Facilitate research to characterise bird diversity, abundance, natural variability, movement patterns and critical habitats within the marine park.	Research	H
	4. Facilitate research on shearwater behaviour, population numbers, ecological relationships, threats, and their capacity to act as bio-indicators.	Research	H
	5. Assess the level and potential impacts of human activities on the seabird and shorebird populations in the marine park and implement an appropriate seabird and shorebird monitoring program.	Monitoring	H
	6. Ensure that management of migratory shorebirds in the marine park supports relevant international agreements (e.g., Ramsar Convention, Convention on the Conservation of Migratory Species of Wild Animals).	Management framework	H
	7. Liaise with land managers to undertake complementary management actions on adjacent land and terrestrial reserves to manage potential detrimental impacts on seabirds and shorebirds.	Management intervention and visitor services	H
Performance measures	Indicators to be developed but may include: • abundance • diversity • breeding success.		
Target	• No significant loss of diversity or abundance of seabird and shorebird species as a result of human activity. • No significant decline in breeding success of key seabird and shorebird species beyond the limits of natural variation due to human activities in the park.		
Reporting	3-5 years		

5.11 Pinnipeds (KPI)

Two species of pinnipeds, the Australian sea lion (*Neophoca cinerea*) and long-nosed fur seal (*Arctocephalus forsteri*) commonly use the islands of the South Coast as breeding and haul-out sites (CALM, 1994).

The Australian sea lion is endemic to Australia and listed as an Endangered species under the EPBC Act and the BC Act. Surveys of known Australian sea lion breeding sites estimate an overall population of a few thousand individuals (Goldsworthy et al., 2021). About 20 percent of the Australian population occurs at sites in Western Australia and 80 percent in South Australia. The Australian sea lion is neither increasing in population numbers nor expanding its range (DSEWPaC 2013; Goldsworthy et al., 2021). The Recherche Archipelago is an important area in Western Australia for Australian sea lion breeding and hauling out (Goldsworthy et al., 2021).

The long-nosed fur seal is listed as 'Other Protected Fauna' under the BC Act. It is found in New Zealand and Australia, with an estimated population of 50,000 in New Zealand (including outlying islands), with > 15,000 long-nosed fur seals in Western Australia (Campbell et al., 2014). In Western Australia, long-nosed fur seals are found from the South Australian border to Jurien Bay (Campbell et al., 2014). Breeding grounds in the marine park occur throughout the Recherche Archipelago. In 2011, breeding localities in Western Australia were surveyed. Of these, Salisbury Island, Seal Rock and Cooper Island were determined to be important breeding sites for the species (Campbell et al., 2014).

Current threats to both species include habitat and prey availability, fisheries bycatch, entanglement in demersal gillnets and marine debris, displaced or disturbed habitats and introduced diseases (DoPW, 2016; Hamer et al., 2013; Osterrieder et al., 2017; Shaughnessy et al., 2013). It has also been recognised that tourism interactions can disturb sea lions (Lovasz et al., 2008). Entanglement in fishing gear is one of the greatest threats to the Australian sea lion population as it often results in injury or death (Campbell et al., 2008; Hesp et al., 2012). To assist in mitigating these risks, in June 2018 DPIRD implemented fisheries management changes which created a network of 33 Australian sea lion gillnet exclusion zones through the known range of Western Australia's Australian sea lion colonies (Watt et al., 2021). Waters within the zones are closed to gillnet fishing by commercial demersal gillnet and demersal longline operators to reduce the risk of interaction between nets and sea lions. These zones range from 6-33km in radius around known breeding colonies and cover a total of 17,300km^2 around Western Australia (Watt et al., 2021).

Sea lion exclusion devices are also a legislative requirement for operators in the commercial rock lobster fishery, within a specified zone, to reduce the risk of Australian sea lions drowning in pots. The effectiveness of these devices in mitigating interactions has been shown over a range of studies (How et al., 2023).

Summary of management arrangements for pinnipeds			
Current status	• Australian sea lion numbers do not appear to be recovering in terms of population size and are listed as Endangered under the BC Act, EPBC Act and the IUCN red list. • Long-nosed fur seal populations in Western Australia appear to be stable or increasing in range.		
Pressures	• Commercial fishing (bycatch, prey availability). • Marine debris (e.g., ingestion, entanglement). • Discharge of toxicants and nutrients (e.g., from waste and storm water). • Disturbance (e.g., wildlife watching and interactions). • Vessel strike. • Large scale coastal developments. • Aquaculture (e.g., habitat exclusion, entanglements). • Major pollution event (e.g., oil or chemical spill). • Provisioning (e.g., causing a change in behaviour). • Illegal culling (direct killing). • Disease or pathogens such as tuberculosis (*Mycobacterium pinnipedii*), Q fever (*Coxiella burnetii*), hookworm and avian influenza.		
Current major pressure	Climate change.		
Management objectives	To ensure the abundance of pinnipeds is not impacted by human activity in the marine park.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Undertake and/or support research and monitoring projects on pinnipeds where they contribute to management effectiveness. [DPIRD]	Research and Monitoring	H
	2. Educate users of the marine park about pinnipeds and the potential detrimental impacts of human activities (e.g., feeding and discarding of offal and bait, disturbance, marine debris, fishing gear) on the marine park's pinnipeds, and regulations for pinniped interactions under the BC Act.	Education and interpretation	H
	3. Implement an eight-knot speed limit within 500m of pinniped breeding and haul-out sites. **[DoT]**	Management intervention and visitor services	H
	4. Conduct targeted compliance and enforcement to monitor compliance within gillnet exclusion zones around sea lion colonies. [DPIRD].	Patrol and enforcement	H
	5. Investigate sources of injury and causes of mortality of pinnipeds and maintain records of them in the marine park.	Monitoring	H
	6. Continue to support cultural research characterising cultural connections to pinnipeds and importance to Wudjari heritage, and ensure the results inform public education products.	Research	H
	7. Regulate access of recreational visitors to marine park areas adjacent to breeding grounds and haul-out sites.	Management intervention and visitor services	H
	8. Assess and respond to marine fauna entanglements in collaboration with other agencies, considering capacity and circumstances as appropriate.	Management intervention and visitor services	As required

Performance measures	Indicators to be developed but may include: • number of reported pinniped injuries and deaths • number of Australian sea lion pups at breeding sites and adults at haul-out sites over the course of a breeding cycle.
Target	• No significant increase in the number of reported pinniped injuries or deaths as a result of human activity. • No significant decline in the number of pinnipeds at haul-out or pupping sites and islands over the course of a breeding cycle within the marine park.
Reporting	3-5 years

Australian sea lion. Courtesy of Dwert Balgart/ETNTAC

5.12 Cetaceans (KPI)

Humpback (*Megaptera novaeangliae*) and southern right (*Eubalaena australis*) whales are the most common whale species that occur within the marine park.

The humpback whale breeding population of Western Australia (Southern Hemisphere Group IV) is one of the only heavily exploited whale populations to recover post whaling (Bejder et al., 2015), with last estimates of more than 30,000 (Hedley et al., 2011; Salgado-Kent et al., 2012). Humpback whales are frequently seen as they migrate along the South Coast to and from their summer feeding grounds in Antarctica to breeding and calving grounds in the north of Western Australia between May and November each year. The humpback whale is listed as Vulnerable under the EPBC Act and Conservation Dependent under the BC Act.

Southern right whales visit the South Coast between June and November each year. The females use sheltered bays on the South Coast as birthing and nursery areas and cows and calves are often seen close to shore from August to October (CALM, 1994). Southern right whales form large aggregations in coastal bays along the South Coast, during the 'over-wintering months' (June to November) where breeding, calving and rearing of young takes place. An estimated 55,000–70,000 southern right whales could be found in the southern hemisphere in the late 1700s, however, whaling in the nineteenth century reduced southern right whale numbers in Australian waters. Current estimates of the south-western Australian subpopulation are at approximately 2,500 individuals. The population is increasing at a rate of ~5.3 percent annually (Smith, et al., 2023) and the South Coast is the stronghold of the Australian population, given the low numbers of the 'eastern' population which is estimated at approximately 268 (CI 146-650) breeding females (Stamation et al., 2020).

Common dolphins (*Delphinus delphis*) are predominantly offshore inhabitants and are one of the world's most abundant dolphin species. They are commonly sighted throughout the South Coast region. Within Western Australian waters there are no estimates of population size, population trends, information on specific calving areas or reproductive cycle for this species.

Indo-Pacific bottlenose dolphins (*Tursiops aduncus*) typically occupy coastal waters <20m deep. This species is known to have a slow reproductive rate, with prolonged maternal investment and a long interbirth interval of about three to six years, and relatively high calf mortality (Connor et al., 2000; Wells & Scott, 2000). Threats to whales and dolphins include entanglement in marine debris and set fishing gear, climate change, overfishing, which reduces prey availability, habitat loss from coastal construction, disturbance, noise and vessel strike. Bottlenose and common dolphins can also be caught as bycatch in trawl, gillnet, purse seine and trap fisheries (Kemper & Gibbs, 2001; Kemper et al., 2003; Jaiteh et al., 2013; Jaiteh et al., 2014; Waples & Raudino, 2018).

DPIRD assesses fishing-related threats to species and ecosystems, identifies and implements a range of management actions to mitigate impacts, and undertakes ongoing monitoring to review the effectiveness of measures put in place (How et al., 2021). The Australian Fisheries Management Authority initiated a bycatch action plan for several fisheries in 2001 to reduce bycatch of dolphins and other marine animals (Ross, 2006).

Summary of management arrangements for cetaceans	
Current status	• The humpback whale population that uses the marine park as part of its range is believed to be the largest breeding population in the world and has been downlisted to Conservation Dependent under the BC Act, as the population is beginning to recover from whaling impacts. • The southern right whale is listed as Vulnerable under the BC Act, and while slowly recovering, population estimates are still low compared to the estimated population in the 1800s. • Little is known about the size or health of other cetacean species in the marine park, but they are assumed to be in a stable condition.
Pressures	• Marine debris (e.g., ingestion, entanglement). • Climate change (e.g., increasing water temperatures). • Discharge of toxicants and nutrients (e.g., from waste and storm water). • Disturbance (e.g., wildlife watching and interactions, noise from vessel traffic). • Vessel strike. • Potential mining exploration/development (e.g., seismic surveys). • Large scale coastal developments (e.g., habitat loss and/or modification, disturbance). • Major pollution events (e.g., oil and chemical spills). • Commercial fishing, including aquaculture (entanglement, bycatch and prey depletion).
Current major pressure	None currently identified.
Management objectives	To ensure that cetaceans are not significantly impacted by human activity in the marine park.

Southern right whale offshore from Benwenerup (Stokes Inlet). Courtesy of Dan Paris/DBCA

		Management program	Priority
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Undertake and/or support research characterising cetacean diversity, abundance, natural variability and habitat use within the marine park.	Research	M
	2. Undertake and/or support cultural research characterising cetacean cultural connections and importance to Wudjari heritage, and ensure the results inform public education products.	Research	M
	3. Undertake monitoring: • assess the condition of cetaceans and the pressures acting on them within the marine park • monitor the effectiveness of any management responses to address pressures and issues involving cetaceans within the marine park • develop and maintain records on the incidence of entanglement, vessel strike, strandings or mortalities of cetaceans in the marine park.	Monitoring	H
	4. Report on cetacean monitoring, population assessments and management outcomes to other government agencies and the wider community.	Education and interpretation	M
	5. Assess and respond to marine mammal entanglements, injuries and mortality events in collaboration with other agencies, considering capacity and circumstances as appropriate.	Management intervention and visitor services	As required
	6. Educate marine park users and commercial tour operators about cetaceans, the potential detrimental impacts of human activities on the marine park's cetaceans, responsible marine mammal viewing and regulations relating to marine mammals under the BC Act.	Education and interpretation	M
	7. Enforce marine mammal regulations in place under BC Act.	Management framework	H
	8. Investigate the extent and significance of interactions between commercial and recreational fishing and cetaceans and address as required. **[DPIRD]**	Research	M

Performance measures	Indicators to be developed but may include: • diversity • species local abundance • species local distribution.
Target	• No significant decline in diversity or species abundance as a result of human activity. • No significant change to species distribution as a result of human activity.
Reporting	10 years

6. People on Country

Strategic objective: Provide equitable and sustainable opportunities for recreational and commercial activities by allowing communities to safely utilise the marine environment as a source of income, food and enjoyment.

Boodja is where the heart is. It is not just 'nature', although it is mother to all things. It is life, spirit, home and culture; and it is where the Wudjari old people used to walk.

Our communities are not and have never been separate from their boodja. Boodja has always needed people on it, managing it, caring for it and enjoying it. Before colonisation, Wudjari people looked after boodja, undertaking activities like cultural burning, estuary opening and fish trapping. In turn, the animals and plants of Wudjari Boodja have grown and dispersed with these cultural practices. People have always needed boodja and boodja has always needed people. People should not be excluded from boodja, but at the same time, Wudjari Elders recognise that there are right and wrong ways of connecting. Wrong ways cause harm, right ways lift spirits. Making boodja healthy means connecting with Country in the right way.

6.1 Visitation, tourism, nature appreciation and visitor safety

Tourism has become one of the most significant economic sectors on the South Coast with popular tourism destinations including the region's forests, coastline, national parks, wildlife, heritage values and fine food and wine (SCRMPWG, 2010). Patterns of recreational activity are mostly influenced by season and holiday periods, weather, access, and proximity to population centres.

It is estimated that 40 percent of domestic tourists visiting the South Coast engage in some form of marine activity as part of their tourism experience due to the region's clean water, lack of crowds and idyllic coastal scenery. Marine-based activities include wildlife watching, recreational diving, surfing, sailing, boating, water skiing, jet skiing, island visits, windsurfing, beach-going, swimming, coastal walks and four-wheel driving and camping on the coast and on islands. Increasing numbers of visitors are arriving on cruise ships (SCRMPWG, 2010).

Charter boats operating on the South Coast offer a range of tourism opportunities including wildlife watching, visiting islands and heritage sites and private functions. Diving and snorkelling charters focusing on local reefs and wrecks run from Albany, Bremer Bay and Esperance and sight-seeing charters based on coastal scenery, islands, harbours, and estuaries are available in most South Coast towns (SCRMPWG, 2010). There is a current lack of co-design and integration of tourism that brings together cultural and eco-elements.

There are also a variety of terrestrial tour operators active adjacent to the marine park who are licensed to operate in the adjacent national parks and nature reserves. Activities include bushwalking, sightseeing and wildflower tours, and other nature-based appreciation activities.

Marine nature-based tourism has the potential to make an important contribution to the protection of the region's ecosystem by fostering a greater understanding of the environment. However, if tourism is carried out inappropriately it has the potential to reduce the quality of the features visitors seek to experience. Examples include visitors leaving litter, interacting inappropriately with wildlife and physically disturbing or damaging marine habitats.

The CALM Act and CALM Regulations require commercial businesses operating in marine parks and reserves to have a commercial operations licence and abide by the conditions outlined in the department's *Commercial Operator Handbook – Marine,* which provides specific information for commercial businesses operating in a marine park or reserve.

Recreation and tourism within the marine park will be managed in accordance with the department's Policy No. 18 – Recreation, tourism and visitor services, which focuses on both the management of activities consistent with protecting the marine park's values (the values on which commercial nature-based marine tourism depend), and maintenance of a viable tourism product.

6.1.1 Visitor safety

The remote nature of the marine park, combined with extreme weather conditions (for example, strong winds, large swells and storms), pose a risk to visitors and other marine park users. This is particularly dangerous for visitors who may be inexperienced in, or unprepared for, such conditions. Visitors to the marine park are advised to be mindful of the risks that Australian sea lions and other wildlife can pose to their safety and the effects of inappropriate interactions with them, such as feeding them or not maintaining separation distances.

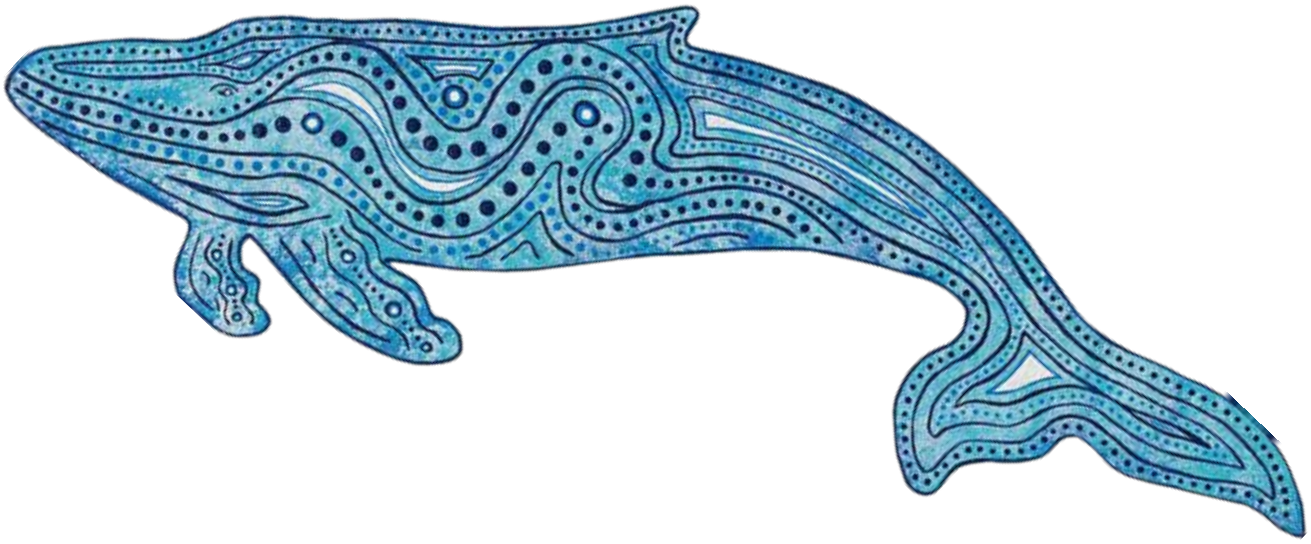
Risks to visitors are managed under the framework of the department's Policy Statement No. 53 – Visitor Risk Management Policy. Other departments and organisations which have a shared responsibility for visitor safety in the marine park include:

- DoT, which is responsible for installing and maintaining navigation aids and other boating safety measures in all state waters
- The Australian Maritime Safety Authority (AMSA), which is responsible for ensuring domestic commercial vessels comply with the requirements of the *Marine Safety (Domestic Commercial Vessel) National Law Act 2012.*

Summary of management arrangements for recreation, tourism and visitor safety			
Requirements	• High water quality. • Healthy marine and estuarine communities. • Clean beaches and coastal areas. • High aesthetic quality of the marine environment. • Provision of 'undisturbed' areas for nature appreciation. • Appropriate infrastructure and activities. • Equitable access to the natural values in appropriate zones. • Avoidance or minimisation of visitor injury.		
Management objectives	• Ensure that tourism activities and recreational use are managed in a manner that is consistent with maintaining the cultural, ecological and social values of the marine park. • To maintain the ecological values of the marine park important for recreation and nature-based and cultural tourism. • To minimise risk to visitors and encourage appropriate behaviour. • To manage activities in a manner that minimises conflict between marine park users.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Ensure the granting and renewal of commercial tour licences is consistent with the provisions of this management plan.	Management framework	As required
	2. Conduct information exchange workshops and interpretation training for marine tourism operators.	Education and interpretation	H
	3. Develop and maintain a database of the spatial and temporal patterns and potential environmental impacts of commercial tourism operations within the marine park.	Management intervention and visitor services	H
	4. Work with relevant agencies and industry bodies to adapt and improve existing mapping programs or apps reflecting marine park risks and management arrangements, including zoning. [DoT]	Management intervention and visitor services	H
	5. Work with the Wudjari and commercial operators to promote culturally appropriate visitation and facilitate the establishment of high-quality commercial tourism operations that: • increase visitor enjoyment and safety • demonstrate a commitment to protect and promote the park's cultural, natural, recreational and tourism values • conduct operations according to DBCA licence conditions • foster community stewardship of the marine park.	Management framework	H
	6. Provide input to the Marine Tour Operator handbook to develop specific conditions for commercial marine nature-based tourism operations in the marine park, including performance measures, desired trends, short-term and long-term management targets, monitoring and reporting requirements.	Management framework	M
	7. Investigate opportunities to run safety campaigns to educate visitors on safe practices in and around Wadarn Boodja.	Education and interpretation	M

	8. Implement interpretative signage at access points around Wadarn Boodja, with the aim of promoting Wudjari protocol, and educating marine users on how to properly respect and care for boodja.	Education and interpretation	H
	9. Conduct visitor surveys to gather data on use of the marine park, including visitor numbers, locations and anchoring points to understand potential impacts and direct monitoring programs.	Research	H
	10. Seek to designate vessel speed restrictions for wildlife protection and/or for safety requirements if necessary. [DoT]	Management intervention and visitor services	M
	11. Work collaboratively with the charter boat sector in the management of the marine park particularly in key areas such as visitor education programs, mooring arrangements, compliance and monitoring programs. [Charter sector]	Management framework	M
	12. Educate marine park users about protocols and regulations for the use of remotely piloted aircraft to minimise impacts and disturbance to marine park values.	Education and interpretation	L
	13. Conduct periodic visitor risk assessment in the marine park as required and mitigate identified issues. [AMSA, DoT, DPIRD]	Management intervention and visitor services	L
	14. Investigate how Wudjari fishing protocols can be built into the broader fisheries community education program, to provide cultural education to the wider community (e.g., catch care guide – how to fillet fish effectively etc). [DPIRD]	Education and interpretation	H

Performance measures	• Visitor satisfaction (e.g., experiences and expectations) as determined by human use monitoring. • Number of visitor safety incidents reported to DBCA and/or the JMB.
Target	• Visitor satisfaction is 85 percent or above within five years. • No significant increase in the total number of serious visitor safety incidents per capita compared to baseline levels.
Reporting	Annually



6.2 Recreational fishing

Recreational fishing is of great importance to the Western Australian community and to South Coast residents and visitors and generates significant economic activity in regional centres. The annual economic contribution to Western Australia from recreational fishing is estimated to be between $1.1 billion (Moore et al., 2023) and $2.4 billion, including a total of approximately $146.6 million in the Goldfields-Esperance region (McLeod & Lindner, 2018). The South Coast offers a diverse array of recreational fishing experiences and many South Coast recreational fishers also fish to obtain a 'fresh feed' or 'fresh seafood'. Thus, continued access for the community to undertake recreational fishing is important for food security, ensuring the community's access to healthy and affordable food.

Other primary motives for undertaking recreational fishing include to relax and unwind, to be outdoors, for solitude, or to be with family and friends, highlighting the important social and mental health benefits recreational fishing provides.

Due to the remoteness of much of the coastline and limited access to many areas, recreational beach and boat fishing in the marine park tends to be concentrated around major population and holiday centres.

The main species targeted by beach and rock fishers on the South Coast include Western Australian salmon (*Arripis truttaceus*), Australian herring (*Arripis georgianus*), whiting (*Sillaginidae*) and silver trevally (*Pseudocaranx* spp.). Common species targeted by boat-based fishers include pink snapper (*Chrysophrys auratus*), queen snapper (*Nemadactylus valenciennesi*), bight redfish (*Centroberyx gerrardi*) and King George whiting (*Sillaginodes punctata*), while mullet (*Muglidae* spp.) and black bream (*Ancanthopagrus butcheri*) are targeted in rivers and estuaries (Newman et al., 2021).

The potential pressures associated with recreational fishing in the marine park include bycatch of unwanted non-target species, overfishing of targeted species, and associated impacts on other ecological values (i.e. from litter, discarded/broken off fishing gear and disturbance of sensitive habitats).

Sanctuary zones, which prohibit extractive activities including recreational fishing, will be used to ensure ecologically important and representative areas of ecosystems are protected from a variety of pressures, including recreational fishing.

DPIRD is responsible for managing target fish stocks for sustainability, with fisheries rules continuing to apply both within and outside the marine park. Fish stocks are managed through a wide range of management tools, including size and bag limits, gear restrictions, licences and closed seasons.

Commercial tour operators offering recreational fishing operating in the marine park require a licence from DBCA under the CALM Act and must adhere to the rules, provisions and regulations outlined by DPIRD and the FRM Act.

Summary of management arrangements for recreational fishing			
Requirements	• Maintenance of key habitats (e.g., nursery and spawning areas). • Equitable and safe access to fishing grounds in appropriate zones. • Maintenance of sustainable targeted fish stocks. • Maintenance of recreational fishing experience. • Appropriate provision and placement of infrastructure and facilities.		
Management objectives	• To ensure that, in collaboration with the community and DPIRD, recreational fishing in the marine park is managed in a manner that is consistent with maintaining the marine park's cultural and ecological values, while providing for social uses and enjoyment. • To maintain ecological values of the marine park that support recreational fishing. • To work collaboratively (with agencies, stakeholders and the community) to maintain and promote safe and enjoyable recreational fishing opportunities in the marine park.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. See section 9.3 – Zoning and permitted activities.		
	2. Educate recreational fishers on recreational fishing rules, including in the marine park. **[DPIRD]**	Education and interpretation	H
	3. Educate recreational fishers on customary fishing and rights of Traditional Owners, including Wudjari guidelines and protocols for responsible fishing. [DPIRD]	Education and interpretation	H
	4. Conduct and/or support research to determine if cultural and ecosystem effects from recreational fishing are occurring in the marine park and undertake adaptive management actions if required. [DPIRD]	Research	H
	5. Implement safety signage in dangerous areas in/ around Wadarn Boodja. [LGA]	Education and interpretation	H
	6. Engage with local recreational fishing groups to promote responsible fishing behaviour (i.e., best catch care practices). **[DPIRD]**	Education and interpretation	H
	7. Monitor recreational fishing catch and effort in the marine park. **[DPIRD]**	Monitoring	H
	8. Investigate whether the take of recreationally targeted species is sustainable in the marine park and undertake adaptive management if required. **[DPIRD]**	Research	H
	9. Provide updates to marine park managers in relation to fisheries management and monitoring. **[DPIRD]**	Management framework	H
	10. Assess possible displacement of fishing effort, changes in fishery dynamics (exploitation patterns) and other impacts that may be influenced by restrictions on fishing access in the marine park to ensure ongoing efficacy of stock assessment data-inputs and examine potential management responses. **[DPIRD]**	Research	H

6.3 Commercial fishing

Commercial fishing is recognised as an important social and economic contributor to Western Australia's regional communities, generating more than half a billion dollars of income directly into the State economy. It supplies locally caught, fresh and sustainable seafood to Western Australian communities, provides employment, training and career opportunities for regional youth, and contributes to the diversity and resilience of local economies. Community access to fish is a key value of the marine park for its importance in food security as a healthy, sustainable and affordable food source.

Western Australia's commercial fishing industry is based on a mix of products and markets, with many products that have traditionally accessed overseas markets transitioning in recent years to focus on increased local supply to support community access to sustainable seafood. This is particularly important for food security in regional towns where cafes, restaurants, fish and chip shops and tourism businesses need to be able to access Western Australian caught fish to make their business viable.

Commercial fishing in Western Australia is managed by DPIRD under the FRM Act using an ecosystem-based fisheries management approach. DPIRD's management of all commercial fishing is underpinned by scientific research, with 98 percent of Western Australia's aquatic resources currently being sustainably managed. Commercial fishing is managed through a wide range of fisheries management tools, including gear restrictions, licences, spatial closures, temporal closures, quota allocations and/or bag and size limits. Twelve commercial fisheries operate in the region (see Appendix 2 for details).

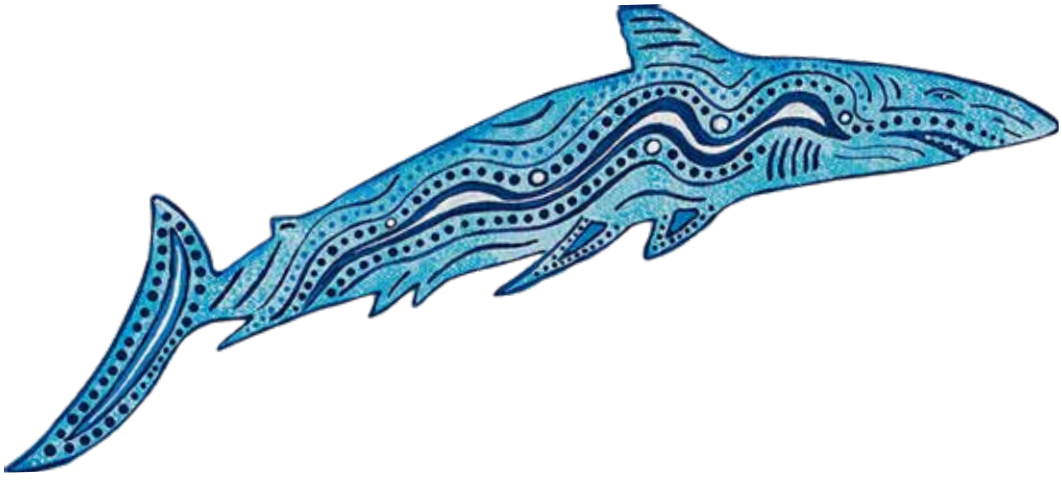
Further information about each of these fisheries and status assessments are publicly available in DPIRD's annual *Status Reports of the Fisheries and Aquatic Resources of Western Australia: The State of the Fisheries.*

Various aquaculture leases exist across the South Coast, however, none lie in the marine park. *Fisheries Management Paper 140 – Aquaculture Plan for the Recherche Archipelago* identifies future development opportunities for the aquaculture sector in the Recherche Archipelago, particularly York, Mart, Remark, Tory and Mondrain island groups. Future aquaculture proposals can be accommodated in general use zones.

Approximately 80 percent of the combined South Coast marine parks are available for commercial fishing. Sanctuary zones, which prohibit extractive activities will be used to ensure ecologically important and representative areas of ecosystems are protected from a variety of pressures, including commercial fishing.

DPIRD will provide advice to the JMB on the ecosystem impacts of commercial fishing in the marine park. Unsustainable fishing practices can result in habitat damage, ecosystem impacts, altered food web dynamics and a decline in stocks.

Summary of management arrangements for commercial fishing			
Requirements	• Maintenance of sustainable, targeted fish stocks. • Equitable access to fishing grounds in appropriate zones, across all extractive activities. • Appropriate provision and placement of infrastructure and facilities.		
Management objectives	To ensure that, in collaboration with industry and DPIRD, commercial fishing in the marine park is managed in a manner that is consistent with maintaining the ecological and cultural values of the marine park.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Work with commercial fishers through peak bodies to ensure operations are conducted in a culturally sensitive manner. **[DPIRD]**	Management Framework	M
	2. Monitor commercial fishing catch and effort in the marine park to inform periodic reviews of its management of commercial fisheries and aquatic resources. **[DPIRD]**	Monitoring	M
	3. Investigate the extent and significance of interactions between commercial fishing and threatened, endangered or protected species and address as required. **[DPIRD]**	Research	M
	4. Conduct research to determine if ecosystem effects from commercial fishing occur in the marine park and undertake adaptive management actions if required. **[DPIRD]**	Research	M
	5. Provide updates to marine park managers in relation to fisheries management and monitoring. **[DPIRD]**	Management framework	M
	6. Ensure that any future aquaculture authorisations are assessed to ensure the values of the park are maintained. [**DPIRD** and DoT]	Management framework	As required
	7. Assess possible displacement of fishing effort, changes in fishery dynamics (exploitation patterns) and other impacts that may be influenced by restrictions on fishing access in the marine park to ensure ongoing efficacy of stock assessment data-inputs and examine potential management responses. **[DPIRD]**	Research	H



6.4 Industry, mining and development proposals

Ports and shipping

Established in 2014, the Southern Ports Authority is the custodian of the three 'gateway' ports of Albany, Esperance and Bunbury (southernports.com.au). The ports of the Southern Port Authority are vital components of the economic and social fabric of the South Coast, with imports and exports through the southern ports playing a critical role in the continuing economic prosperity and activity of the regions they support, as well as to the State and national economies (SCRMPWG, 2010).

The main trade through the Port of Esperance for 2021-22 was iron ore, grain, spodumene, oil/petroleum, woodchips, sulphur, fertiliser and nickel (Southern Ports, 2022). Iron ore and grain exports made up the majority of the trade, with 62.69 percent and 21.70 percent respectively. For the 2022 financial year, 200 ships passed through the Port of Esperance, which included 914,268 tonnes of imports and 12,780,158 tonnes of exports.

Development proposals

During the life of the management plan there may be proposals to install or construct infrastructure in or adjacent to the marine park. The nature of the proposed development will determine the appropriate level of assessment. DoT and the Department of Planning, Lands and Heritage (DPLH) are responsible for planning and development of coastal infrastructure. Any developments with the potential to have environmental impacts may be subject to an environmental impact assessment under the EP Act.

Mining exploration and development

The CALM Act specifies that mining and petroleum exploration and production is permitted in a marine park general use zone if it is compatible with the specified purpose of that zone. The environmental and cultural impacts of mining and petroleum exploration or production proposals within or adjacent to the marine park will be subject to evaluation through the normal assessment and approvals process under Western Australian and Commonwealth legislation. Mineral, petroleum and pipeline activities are regulated by DEMIRS under the *Mining Act 1978*, *Offshore Minerals Act 2003*, the *Petroleum and Geothermal Energy Resources Act 1967*, the *Petroleum (Submerged Lands) Act 1982* and *Petroleum Pipelines Act 1969*. Projects of state significance may be administered by the Department of Jobs, Tourism, Science and Innovation under project specific agreement acts.

Exploration and development proposals that may cause significant impact on key biodiversity values should be referred to the EPA for environmental impact assessment under the EP Act. Applications to explore or mine within parks vested in the CPC may also be referred to the Minister for Environment as required under environmental, mining and petroleum legislation. Exploration and development that may have a significant impact on matters of national environmental significance may also require approval under the EPBC Act.

The oil and gas industry uses seismic surveys to explore for natural resources. Marine seismic surveys can increase background noise levels while they are in progress and have the potential to impact marine fauna by disrupting communication, navigation, and foraging habits. Some marine species such as whales may temporarily move away from the affected area. Any seismic survey in the marine park will be subject to evaluation as part of the applicable State and Commonwealth government approvals processes.

Mooring and anchoring

Management of moorings and anchoring is a key aspect of managing increasing vessel use in Western Australia's marine parks. With an expected increase in commercial and recreational vessels visiting and operating on the South Coast, it is expected that mooring and anchoring activities will increase over time.

The marine park allows for mooring and anchoring activities, however, if not installed and maintained correctly moorings may cause irreversible damage to the surrounding habitat and pose a risk to marine park users and property. Refer to the department's Policy Statement 59: Mooring Policy for further information regarding the management of moorings within marine parks. If required, a mooring and anchoring plan may be developed for the marine park.

Tjaltjraak Senior Cultural Advisor, Uncle Henry Dabb, and side sonar equipment used in ETNTAC's seafloor mapping work. Courtesy of David Guilfoyle/ETNTAC

Summary of management arrangements for industry, mining and development proposals			
Requirements	Equitable access in appropriate zones.		
Management objectives	To ensure that shipping and industry, including mining, development and associated activities are managed in a manner consistent with the objectives of the marine park.		
		Management program	Priority
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Provide formal advice to the CPC and the EPA relating to mineral, petroleum and renewable energy activities in and adjacent to the marine park. [DPIRD, DWER, DEMIRS]	Management framework	As required
	2. If required, develop a mooring plan, with appropriate consultation on ecological and social impacts and suitable capacities and ensure all moorings meet required standards.	Management framework	As required
	3. Provide advice on the assessment, setting of conditions, and monitoring and reporting requirements for mineral, petroleum and renewable energy activities consistent with the management objectives and management targets for values in the marine park.	Management framework	As required
	4. Refer, or recommend the referral of exploration or development proposals, that may impact significantly on the values of the park to the EPA for consideration under the EP Act or to the Commonwealth Department of Climate Change, Energy, the Environment and Water for assessment under the EPBC Act.	Management framework	As required
	5. Ensure that license conditions of approved industry activities include appropriate environmental performance measures, desired trends, short-term and long-term management targets, and monitoring and reporting requirements. [DWER]	Management framework	As required
	6. Assess the viability and applicability of project proposals on Sea Country from both scientific and cultural perspectives.	Management framework	As required
	7. Explore partnerships with the Southern Ports Authority for collaborative monitoring of seagrass and indicator species between marine park zones and port waters, with reference to integrated management, biosecurity and public education.	Management framework	H

6.5 Maritime heritage

European settlement in the Esperance region began in the early 19th century with whaling and sealing colonies established along the coast and islands of the Recherche Archipelago (Guilfoyle et al., 2019). In 1837, James Maclean Dempster's Fremantle Whaling Co. operated throughout South Coast waters. Following the discovery of gold in the late 19th century, hopeful gold prospectors travelled to the Goldfields, which saw Esperance's early development as a port and recreation centre (SCRAP & SCRIPT, 1997).

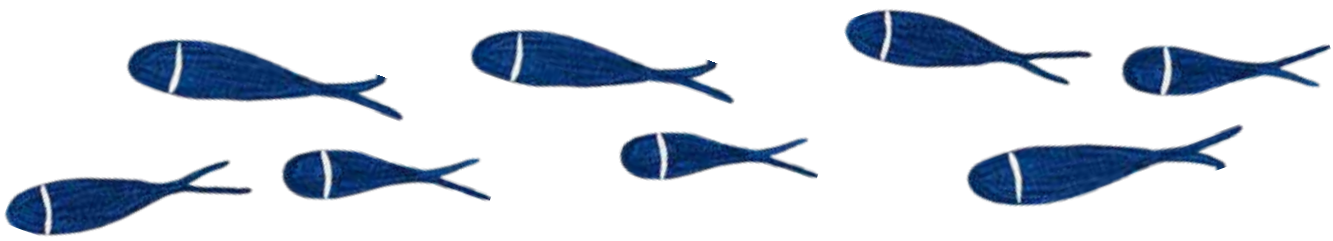
Tjaltjraak Rangers managing coastal landscapes. Courtesy of ETNTAC

Key events in the South Coast's rich maritime history are listed below.

Date	Event
1627	The first European to record the Archipelago of the Recherche was Peter Nuyts, aboard the Dutch ship the *Gulden Zeepaard*, who mapped 1,500km of the South Coast calling it Nuytsland.
1792	Admiral Bruni d'Entrecasteaux arrived in command of two vessels *L'Esperance* and *La Recherche*, taking shelter in the lee of Observatory Island naming the area Esperance Bay ("hope") and Recherche ("to search for") after his ships. He also named Cape Le Grand and other features.
1826	King George Sound military settlement established, as ships of many nations frequented the South Coast, including whalers and sealers.
1892	Bayley and Ford's gold find at Coolgardie brought people in their hundreds, via Esperance, and as many as 400 men arrived in one ship alone.
1893	Patrick Hannan found gold at Kalgoorlie. This rush led to the proclamation of Esperance townsite gazetted on plans laid out by surveyor Brazier.

Maritime heritage is protected under the Commonwealth *Underwater Cultural Heritage Act 2018* (UCH Act) and the *State Maritime Archaeology Act 1973* (MA Act). The Western Australian Museum (WAM) has statutory responsibility for the management of historic wrecks. This period of European exploration is an important theme for Wudjari heritage, and so the study and management of maritime history requires consideration of the shared histories and integrative research and management.

Summary of management arrangements for maritime heritage			
Requirements	Identification and protection of historic maritime sites.		
Management objectives	To ensure that, in collaboration with WAM, human activity does not significantly affect historic sites or shipwrecks in the marine park.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Provide interpretive information to inform and enhance visitor understanding of maritime heritage values in the marine park, including information about regulations under the MA Act and UCH Act.	Education and interpretation	L
	2. Liaise with the Heritage Council of Western Australia, WAM, local government and other relevant organisations regarding the appropriate protection, conservation and management of maritime heritage sites.	Management framework	M
	3. Encourage research on maritime heritage, with appropriate permitting, including recording oral histories to facilitate long-term management. **[WAM]**	Research	M
	4. Liaise with other stakeholders to improve the identification, protection, conservation and, where necessary, restoration of maritime heritage.	Management framework	M



7. Understanding Country

Strategic objective: Encourage and promote research and monitoring and the sharing of knowledge from Traditional Owners, scientists and the local community to guide and inform best-practice management.

7.1 Research and education

The complexity of Wudjari Sea Country connections, ancient and changing coastlines, and the diversity of marine habitats, flora and fauna, combined with the range of human activities which occur in the marine park, provide excellent opportunities for research and education.

The marine park is located within the IMCRA South Coast Mesoscale Bioregion, which is influenced by the Leeuwin and Capes currents. The influence of these currents provides a temperature gradient along the length of the South Coast and, as a result, the area is of significant scientific interest. The sanctuary zones provide an opportunity for scientists to undertake research on the recovery/maintenance of marine ecosystems over time when pressures are removed (with the exception of climate change). All zones provide the opportunity for social research with regard to use patterns and community perceptions.

The variety of marine conditions and habitats within the marine park also increases the value of educational opportunities. The marine park is near population centres such as Hopetoun and Esperance and is host to a variety of human activities. This provides an excellent opportunity for community education about the marine park and the marine environment in general.

Research and education can empower people to become stewards for the marine park and allow a greater dissemination of information to occur. Research and education can also help to create an affinity and respect for marine life and encourage participation in marine park use and management, particularly with respect to compliance with marine park rules.

With pressures likely to increase, an increased understanding of the cultural, ecological and social values of the marine park will be critical to effective management. Research in the marine park, informed by traditional ecological knowledge, will assist with continuous improvement of joint management practices and decisions and ensure the marine park is effectively managed.

Research within the marine park will require a licence issued by DBCA. This will enable DBCA to:

- maintain an understanding of research effort
- direct research effort, where necessary, so it is relevant to management
- collaborate with researchers where possible
- share research outcomes with others.

Additional permits or special permission may also be required from DBCA to take flora and fauna, and from DPIRD to carry out research on fish in the marine park. These additional requirements are particularly relevant if the activity would otherwise be prohibited, such as the take of protected fish or the use of prohibited fishing gear.

"If there are things we don't know, then we find out, but we do it with the culture in mind. We don't know everything, but we will find out."
Wudjari Elder

7.1.1 Sharing knowledge

Wudjari Elders and rangers are eager to work with and share their knowledge with the Esperance community, external researchers and joint management partners. There is a clear drive to share and communicate Wudjari values with the broader community that will access the marine park. Wudjari Elders and community members want to help cultivate the sense of respect and love Wudjari people have for their Wadarn Boodja amongst the broader community.

Sharing knowledge, however, cannot be one-sided. For instance, Wudjari community members expect that external researchers and joint management partners give back to the Wudjari community. This could be through contributing to Tjaltjraak objectives, or simply through sharing skills and knowledge. This reciprocal engagement is important to ensure that everyone benefits from working together.

7.1.2 Learning from Country

Healthy boodja is when land and sea is understood and well researched. Elders, rangers and the broader Wudjari community agree that exploring new and innovative ways of knowing Country is key to connecting with it and making it healthy. Elders and rangers also possess a strong desire to explore new ways of looking after Country. This includes combining traditional cultural practices of knowledge making with new technologies and scientific methodologies. Conducting research that adds to and enriches the extensive knowledge already held by Elders and rangers helps to drive successful conservation planning, but it is also valuable in its own right. Knowledge and research can help make Country healthy.

In addition to specific broad cultural research values, there is a strong desire amongst Wudjari community members to know more about particular species and ecologies that inhabit Wadarn Boodja. The Wudjari community is excited to embrace new approaches to conservation and Sea Country management and be on the forefront of scientific and cultural research.

"You need to be multidisciplinary to look after Country now. We need culture, science, and anyone who's got knowledge that can help. If we have a problem in one area, then we get experts together that can help solve that problem. That's how we need to be."
Wudjari Elder

7.1.3 Understanding marine seasonality

The six seasons reflect a nuanced understanding of yearly changes on Wudjari Country. These seasons are far more accurate and suited to local conditions than those proposed by the European Gregorian calendar. Whilst there is a growing understanding in academic circles of the six seasons and its relationship to terrestrial ecological cycles, there has been less research to date on relationships between the six seasons and marine ecological systems.

A better understanding of marine seasonality is considered to be central to ecological and cultural conservation/rejuvenation on Wudjari Country. There is need to investigate how the Nyungar six seasons relate to marine ecological changes, and how Wudjari knowledge of seasonality on their Country can assist in local marine conservation priorities.

"If we're going to care for Country, we need to have a better understating of local conditions, of how the marine calendar works, and if the Wudjari calendar can help us to understand that."
Wudjari Emerging Elder

7.1.4 Cultural and evidence-based management

The Wudjari community possesses extensive and situated ecological experience of their boodja. Collectively, this experience constitutes an immense wealth of qualitative observational data concerning Country, its ecologies, and the threats it is facing. Wudjari Elders and rangers also care for deep and expansive cultural-ecological knowledge that has been passed down from their old people. This knowledge provides them with a strong factual understanding of their Country, and important perspectives on how best to approach conservation management. Notwithstanding, Elders and rangers strongly value western scientific knowledge that can inform practical and effective marine management. They also value the experiences and perspectives of other groups in the broader community.

The Wudjari community want to ensure that the broader Esperance community can continue to experience and enjoy Wadarn Boodja, but in a sustainable way that ensures Country and its fish are healthy for future generations. The experiences, knowledge, and values held by Wudjari Elders and rangers place them in a strong position to observe, monitor and assess changes that have been occurring on boodja. These observations are not subjective, they are built on deeply ingrained systems of cultural and predictive expertise, mediated by strong cultural governance. Therefore, where explicit and local quantifiable research is not available to measure ecological health or monitor changes in Wadarn Boodja, the expertise of Wudjari Elders and rangers should be considered.

Drawing on this expertise, generally speaking, Elders and rangers are clear that protection efforts should be informed by research and made under strong cultural governance.

"You can explain things to people, but it's best to take people out to Country and show them."
Wudjari Elder

Research strategies specific to particular values of the marine park are detailed in sections 4 to 6. A summary of the generic management objectives, strategies and targets for the research and education values are described in the table below.

Summary of management arrangements for research and education			
Requirements	• Equitable access to the full range of research and educational opportunities in appropriate zones. • Access to representative sites covering the range of major human activity in the marine park. • Access to representative sites free of major human influences.		
Management objectives	• To obtain increased understanding of the biodiversity, biocultural and cultural values and key ecological processes and socio-economic uses within the marine park to inform management. • To promote research that improves knowledge of the values of the marine park and effectiveness of current management strategies to inform future management decisions. • To maximise the integration of conservation science with traditional ecological knowledge in all aspects of research in the marine park. • To promote and facilitate the use of the park for education.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Identify, prioritise and communicate high priority ecological, cultural and social research projects relevant to the management of the marine park to appropriate research organisations.	Research	H
	2. Develop programs that increase knowledge and understanding amongst the community of cultural landscapes and the processes of climate change and adaptation that have led to the formation of our marine and coastal landforms and biodiversity.	Education and interpretation	H
	3. Develop a research and engagement web portal, detailing relevant Wudjari cultural protocols, research expectations, ongoing research and engagement news, interpretation and education content and upcoming research opportunities.	Research	H
	4. Develop collaborative research relationships with marine researchers and their institutions.	Research	H
	5. Develop project ethics and intellectual property protocols, and ensure all research projects align with them.	Research	H
	6. Encourage community and local industry involvement in research and education programs.	Research	M
	7. Develop and implement education and interpretation programs to: • ensure users are aware of and understand the values of the marine park • ensure users are aware of management zones and regulations and the reasons for these controls • improve community knowledge of Wudjari protocols, and how to respect Country. • provide interpretive information on Wudjari stories and histories.	Education and interpretation	H
	8. Develop a range of education materials about the marine park's values and management and distribute to the local community and visitors.	Education and interpretation	H

	9. Encourage commercial tour operators to provide educational courses/materials to their staff and customers to foster the community stewardship of the marine park.	Education and interpretation	H
	10. Where possible, work with other Traditional Owner groups on the South Coast to develop complementary interpretive information across the four marine parks.	Education and interpretation	H
	11. Encourage and support Traditional Owner participation in the development and implementation of research and education programs and identify appropriate opportunities for integrating traditional knowledge.	Management framework	H
	12. Facilitate knowledge transfer and uptake of research findings to adaptive marine park management and planning.	Education and interpretation	H
	13. Seek funding and research opportunities to engage with external researchers, in order to better understand marine seasonality, particularly in relation to the Wudjari six seasons.	Research	H

Performance measures	• Research plans have been developed and approved by the JMB. • Research activities, as detailed in the plan, have been implemented.
Target	• Preparation and implementation of a research plan. • Ongoing and completed research projects.
Reporting	To be determined

Tjaltjraak Rangers deploying BRUVS for marine diversity monitoring. Courtesy of David Guilfoyle/ETNTAC

7.2 Monitoring

Long-term monitoring of the condition of values in the marine environment and the pressures that impact those values is essential to understand natural variation, to evaluate management effectiveness and inform an adaptive management approach. Monitoring enables the detection of detrimental impacts and can determine trigger points for corrective management action before cultural, ecological or social values of a marine park become significantly degraded. Where changes have occurred and remediation measures are required, a monitoring program should also determine the rate of recovery of an affected area or value. The detection of human induced changes requires an understanding of what is 'natural' as a benchmark and this information should be progressively established through ongoing monitoring across spatial zone types that limit human activities, and through the research program.

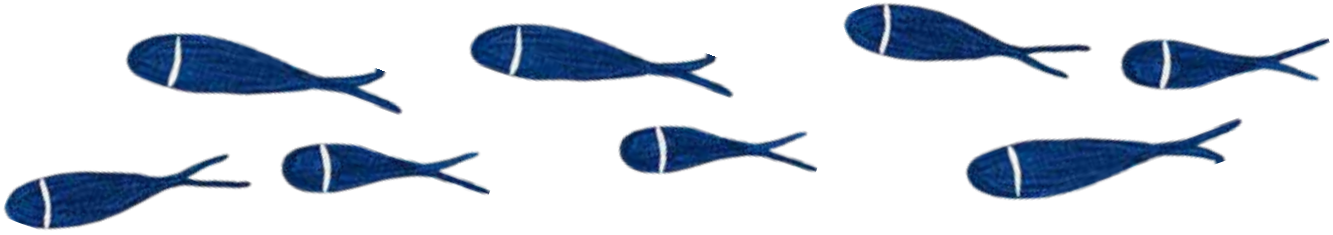
DBCA, in collaboration with joint management partners around the State, is progressively implementing the DBCA Marine Monitoring Program, a systematic program in the State's marine parks and reserves designed to improve understanding of management effectiveness, and to inform future research, monitoring and decision making.

In addition to joint management partners, other organisations involved in monitoring include DPIRD for targeted species as defined in the FRM Act, universities and community groups. Monitoring of the marine park will focus on determining trends in key ecological, cultural and social values within a 'condition-pressure-management-response' framework that measures the 'health' of values against defined management targets.

"It's good to get out on Country and talk to the Elders. We need to know what's going on."
Wudjari Elder

Wudjari environmental management aims to ensure that changes to Country are well monitored. Monitoring changes on Country ensures that issues are identified quickly and provides an expanding data source with which to deliver timely and appropriate management action. Monitoring also enables external stakeholders to become involved in Sea Country stewardship and helps to bring together divers and snorkellers working to ensure a sustainable and healthy marine environment.

Wudjari Elders emphasise that situated and enduring knowledge of Country is essential to ensuring that it says healthy. Observing seasonal ecological processes and human use, reviewing anthropogenic and ecological threats, engaging/building relationships with marine users, undertaking compliance patrols, checking on conservation efforts, ensuring cultural safety, and generally staying connected with Country are actions that can only be undertaken through ongoing qualitative and quantitative monitoring, facilitated by regularly travelling Country.



"Our healthy Country programs form part of our adaptive management—cultural conservation corridors—to reconnect the fragmented landscape and restore our broken songlines."
Wudjari Emerging Elder

Summary of management arrangements for monitoring			
Requirements	• Equitable access to the full range of monitoring opportunities in appropriate zones. • Access to representative sites covering the range of major human activities in the marine park. • Access to representative sites free of major human influences.		
Management objectives	To monitor key cultural, ecological and social values in the marine park within a 'condition-pressure-management response' framework, to provide a basis to assess, adapt and improve management.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Facilitate knowledge transfer and uptake of research and monitoring findings to adaptive marine park management, planning and policy, and where relevant, report on conservation achievements and challenges. [DPIRD]	Monitoring	H
	2. Prepare a monitoring plan which considers existing information, the strategies and priorities identified in this plan, and emerging priorities.	Monitoring	H
	3. Develop a cultural values monitoring framework (and data storage and access process) to guide these activities in a joint management context.	Monitoring	H
	4. The JMB will draw on cultural-scientific expertise to assess the ongoing performance of all marine park values.	Monitoring	H
	5. Investigate opportunities and develop a process to integrate traditional ecological knowledge in monitoring, where appropriate.	Monitoring	H
	6. Provide necessary information and support for assessments of management plan implementation by the CPC. [DPIRD]	Monitoring	H
Performance measures	The development and implementation of a prioritised monitoring program.		
Target	• Preparation and implementation of monitoring plan. • Ongoing and completed monitoring projects. • Number of values, including KPIs, currently being monitored.		
Reporting	To be determined.		

8. Climate change

"We're seeing sea levels rising. We're getting these once-in-a-century storms quite regularly now."
Wudjari Elder

Climate change refers to changes in weather patterns (i.e. temperature, rainfall) and associated changes in oceans, land surfaces and ice sheets, occurring over a period of decades or longer (CSIRO & BoM 2015; Australian Academy of Science, 2020). The effects of ocean warming and sea level rise due to climate change are currently impacting the marine environment globally and climate change is considered to be one of the greatest threats to marine life (Pörtner et al., 2019). It is possible that the impacts of climate change may limit the extent to which management objectives stated in the plan can be achieved.

"The sea level is rising—dunes are constantly getting washed away—every winter. The tide just comes in and washes all the sand away."
Wudjari Elder

The ecological impact of climate change effects including increased temperatures and frequency of episodic events such as heatwaves can range from species shifting their geographic ranges, seasonal activities and migration patterns, to decreased ocean productivity, altered habitats and greater incidence of disease or mortality (Hoegh-Guldberg & Bruno, 2010). This can in turn affect cultural and social values by changing the ecological health of the marine resources upon which customary, recreational and commercial activities rely. Ocean warming is occurring not only in shallow ecosystems but in environments exceeding 2,000m deep in the Southern Ocean (Cooley et al., 2022).

"Even in my lifetime—seen quite a bit of change."
Wudjari Emerging Elder

Establishing marine protected areas can contribute to maintaining climate change resilience and rebuilding ecological and social resilience (IUCN, 2017). Protection of coastal carbon habitats, such as seagrass and kelp, can help to ensure that carbon is not released as a result of the loss and degradation of those areas, while maintaining the carbon pathways in the fauna associated with these critical habitats. Additionally, effective management of human use and local pressures can help to maintain or increase ecosystem health, thereby increasing resilience to external pressures such as climate change. Although marine protected areas can contribute to reducing local stressors and build ecological resilience to change, the protection they provide against the broadscale impacts of climate change is less known, which is one of the biggest challenges that marine protected area managers face.

"We are too busy looking at the bigger picture, or the worst-case scenario, but sometimes the little things are more important."
Wudjari Elder

The Wudjari history is one of thousands of years of experience, adapting and embracing incredible changes to their landscape and homelands, since the end of the last Ice Age. Understanding aspects of this tumultuous human-environment relationship can also help us understand the process and rates of climate change today; and so deep time, culturally guided archaeological research is an important management tool.

"We are worried about climate change. Seagrass has an important part to play in that. We don't want climate change to affect the health of our environments. Seagrass plays such an essential part of our marine environment and if it can help fight climate change, we need to protect it."
Wudjari Elder

Research and monitoring programs contribute to our understanding of the effects of climate change, as well as the development of effective adaptive management responses. Management to reduce the impacts of climate change on the marine park will focus on:

- increasing knowledge and understanding of the effects of climate change on the values of the marine park
- monitoring the effects of climate change on the values and pressures of the marine park
- increasing the health and resilience of ecosystems through the sound management of human uses and local pressures
- undertaking local adaptive management.

Summary of management arrangements for climate change			
Management objectives	To increase understanding of the effects of climate change on the marine park and increase the resilience of ecological values in relation to climate change.		
		Management program	**Priority**
Management strategies DBCA is the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Support international and national climate change initiatives where relevant in marine park research and adaptive management.	Management framework	H
	2. Ensure that impacts of climate change are considered in monitoring programs for the KPIs for the marine park.	Monitoring	As required
	3. Assess areas, habitats and species which are most at risk from the effects of climate change and increase their resilience by reducing other pressures where possible. [DPIRD]	Research	H
	4. Monitor values of the marine park and the climate-related pressures acting on them to inform the development of local and regional level adaptive management responses for the protection of park values.	Monitoring	H
	5. Educate users of the marine park about the effects of climate change on the values of the marine park.	Education and interpretation	L
	6. Support or provide necessary information to contribute to climate forecast models to help predict the impacts of climate change on the values of the marine park.	Research	As required

9. Plan implementation and operation

Sections 4 to 8 outline the management objectives, strategies, performance measures and targets required to achieve the strategic objectives for the marine park. To successfully implement these strategies a number of supporting management strategies are required to effectively administer the park, support overall management and ensure compliance with management arrangements. The implementation of all strategies is ultimately subject to resource availability.

9.1 Cultural governance

Making Country healthy and ensuring it remains healthy requires strong cultural governance. Wudjari Elders draw on deep time, intergenerational, embodied, and situated knowledge of Country and its communities, knowledge which obligates them to ensure that Country remains healthy. Because Country also includes people.

Being obligated to care for Country makes Elders the custodians and advocates for healthy Country. Elders know that everyone has different skills and experiences that must be taken into consideration. Bringing everyone together, respecting each other, yarning, filling knowledge gaps, and exploring solutions to problems collaboratively is a core component of Wudjari cultural practice.

"The Elders are up top, they look after Country. Young ranger, senior ranger, anyone, they [Elders] give you the authority. If there is anyone with problems, the Elders help sort them out".
Wudjari Elder

ETNTAC utilises a cultural protocol organised around informing, consulting with, and seeking permissions from Elders to work on Country. A council of Elders, containing at least one representative from each family group, is kept informed about activities on Country, providing guidance and decision making and ensuring that any decisions made reflect the views of the entire community. Elders make decisions together, in consensus, and only after hearing all the information on hand, and where possible, visiting Country.

Strong cultural governance means that Elders, through the JMB, must have oversight in all matters relating to the health of their boodja.

9.1.1 Holistic and priority management

Wudjari Elders note that all things on Country (both land and sea) are significant and interconnected. Activities that make Country unhealthy on the land also make Sea Country unhealthy, and vice versa.

This means that all organisms and ecosystems should be cared for because they are all important, and that any research, monitoring, or management work conducted on Country must take a holistic approach. A holistic approach includes cultural and ecological values and acknowledges that the ocean and land is interconnected.

"This is all Sea Country. All this land used to be underwater. You used to find shells all the way up at the top of our Country. And what happens now on land, well that affects the ocean today."
Wudjari Elder

9.1.2 Transparency, respect, and accountability

Wudjari Elders emphasise a need for ensuring transparency, respect and accountability in joint management. All parties must respect what each other have to offer, treat each other as equals, be transparent and open in relation to their requirements and challenges, and be accountable for the promises they make.

They need to listen, look and learn. That our cultural process, our law, through oral history. We have a custodial law thing that we have here on Esperance Country. So they come here and listen about who we are, and what we do."
Wudjari Elder

Summary of management arrangements for cultural governance			
Management objectives	Wudjari people and the wider community working together to create a new, holistic management model for the marine park that better aligns customary and contemporary management.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Develop and embed a culture of transparency, accountability, and respect between joint management partners and other agencies.	Management framework	Ongoing
	2. Develop a clear approvals protocol for joint management actions, where the JMB provides final decision-making authority.	Management framework	Ongoing
	3. Ensure that Elders are regularly taken out onto Wadarn Boodja in order to facilitate strong cultural governance.	Management framework	H
Performance measures	To be determined by JMB		
Target	To be determined by JMB		
Reporting	To be determined by JMB		

9.2 Administration and governance

The following strategies will ensure appropriate arrangements are in place to effectively implement management actions and manage the marine park in a collaborative setting.

Summary of management arrangements for administration and governance			
Management objectives	To ensure the marine park has appropriate legal, administrative, financial, operational and human resource frameworks in place so that it is effectively jointly managed in a collaborative setting.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold	1. Implement all statutory notices required to support implementation of the management plan within 12 months of marine park gazettal.	Management framework	H
	2. Collaborate with and provide advice to agencies, stakeholders and adjacent land managers, where necessary, to ensure the protection of marine park values and complementary management of adjacent reserves.	Management framework	As required
	3. Secure and maintain appropriate funding for staff structures, operational equipment, including vessels, and infrastructure to adequately implement the management plan. [DPIRD]	Management framework	H
	4. Investigate the feasibility of establishing a marine research station and peruse third party investment partnerships to help fund its establishment.	Management framework	H
	5. Investigate the possibility of developing an information sharing platform for all agencies involved in managing the marine park to share their data (e.g., a data dashboard).	Management framework	H
	6. Develop annual work plans.	Management framework	H
	7. Develop collaborative operational plans for implementation of relevant strategies in the plan. [DPIRD]	Management framework	H
	8. Ensure cultural safety protocols are observed by joint management partners and other agencies and organisations; including by developing health and safety plans and protocol for all management and research operations conducted on Wadarn Boodja, which incorporates cultural safety provisions.	Management framework	H
	9. Develop a communications plan and protocol for management actions, research and decision making, to ensure that joint management partners are aware of work on Country and are afforded opportunities to participate.	Management framework	H
	10. Pursue external funding and partnership opportunities to implement strategies in the joint management plan.	Management framework	H
	11. Assess impacts on marine park values and manage appropriately as required (e.g., speed limits and/or additional measures to protect threatened species, ecological communities, and natural features or for safety reasons). [DoT]	Management intervention and visitor services	As required

9.3 Zoning and permitted activities

The implementation of an appropriate zoning scheme is an important strategy for the conservation of marine biodiversity, increased recognition and protection of culturally significant areas and customary practices, and the management of human use in the marine park. Importantly, the application of the zoning scheme should not be viewed in isolation but as one tool in a suite of complementary management tools available to marine park joint management partners to achieve desired ecological, cultural and social outcomes.

9.3.1 Zoning design

The zoning scheme for the combined Mamang Maambakoort, Wudjari, Western Bight and Mirning marine parks is comprised of:

- 29 sanctuary zones covering approximately 261,730 hectares or 20 percent of the parks.
- Nine special purpose zones (cultural protection) covering approximately 52,460 hectares or four percent of the parks.
- Three special purpose zones (whale conservation) covering approximately 75,180 hectares or six percent of the parks.
- Two special purpose zones (wildlife conservation) covering approximately 3,710 hectares or less than one percent of the parks.
- General use in the remainder of the parks, covering approximately 899,980 hectares or 70 percent of the parks.

Tjaltjraak Team Leader Hayleigh Graham examining a baarndi (bream) as part of a long-term fish ecology program with Tjaltjraak Ranger Zane Vincent collecting water quality samples. Courtesy of ETNTAC

Maps 9-14 show the zoning scheme for the Wudjari Marine Park. A summary of the activities permitted in each zone is presented in Table 1.

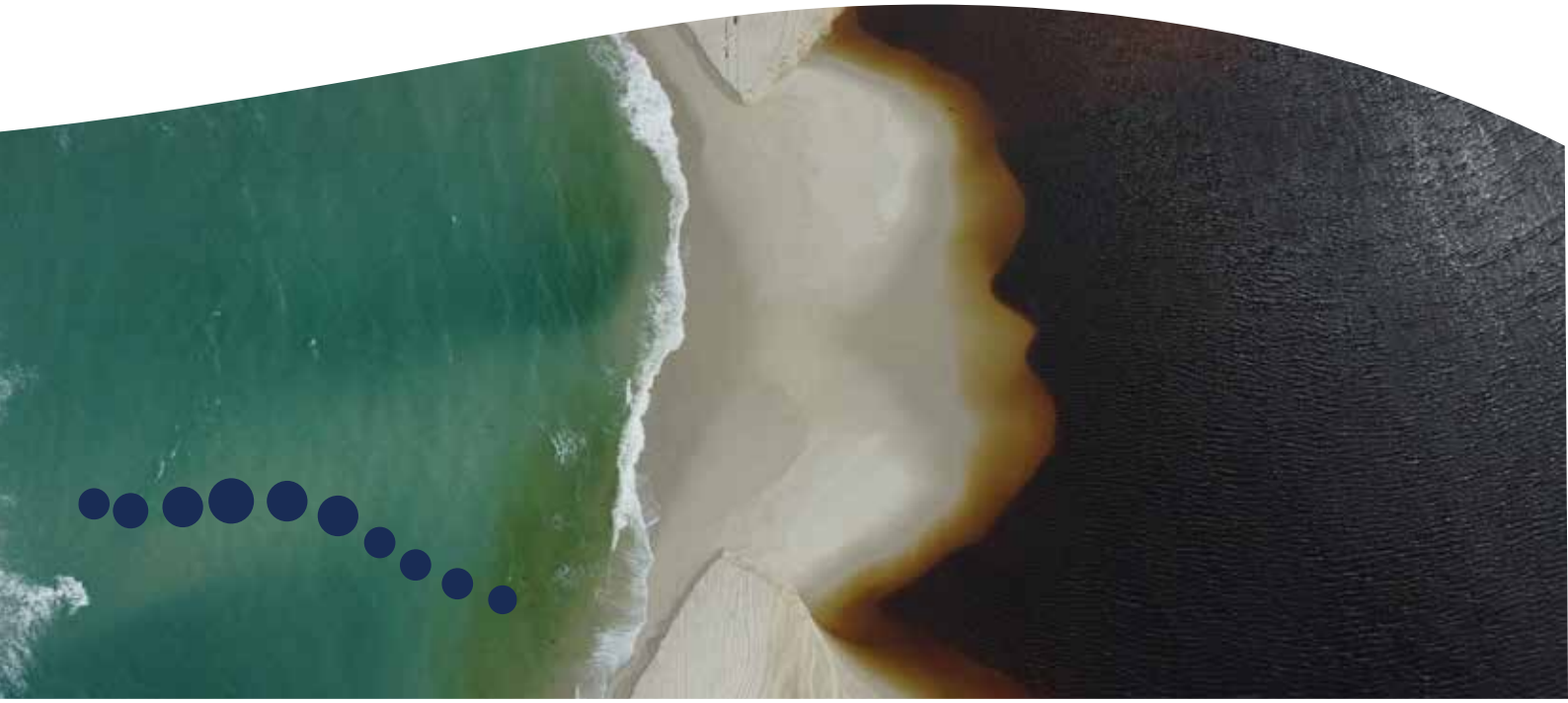
Design of the zoning scheme was guided by a set of principles which aim to provide for ecological, cultural, recreation, tourism and other sustainable use values (see Appendix 1).

The zoning scheme based on the comprehensive, adequate and representative (CAR) approach. It aims to protect ecologically and culturally important high priority values such as seagrass, macroalgal reef, soft substrate and filter feeding communities and considers the level of current and projected future pressures on these values. Zoning schemes are also designed to provide connectivity from estuarine environments out to deeper water and offshore islands and provide complementarity to adjacent marine and terrestrial reserves.

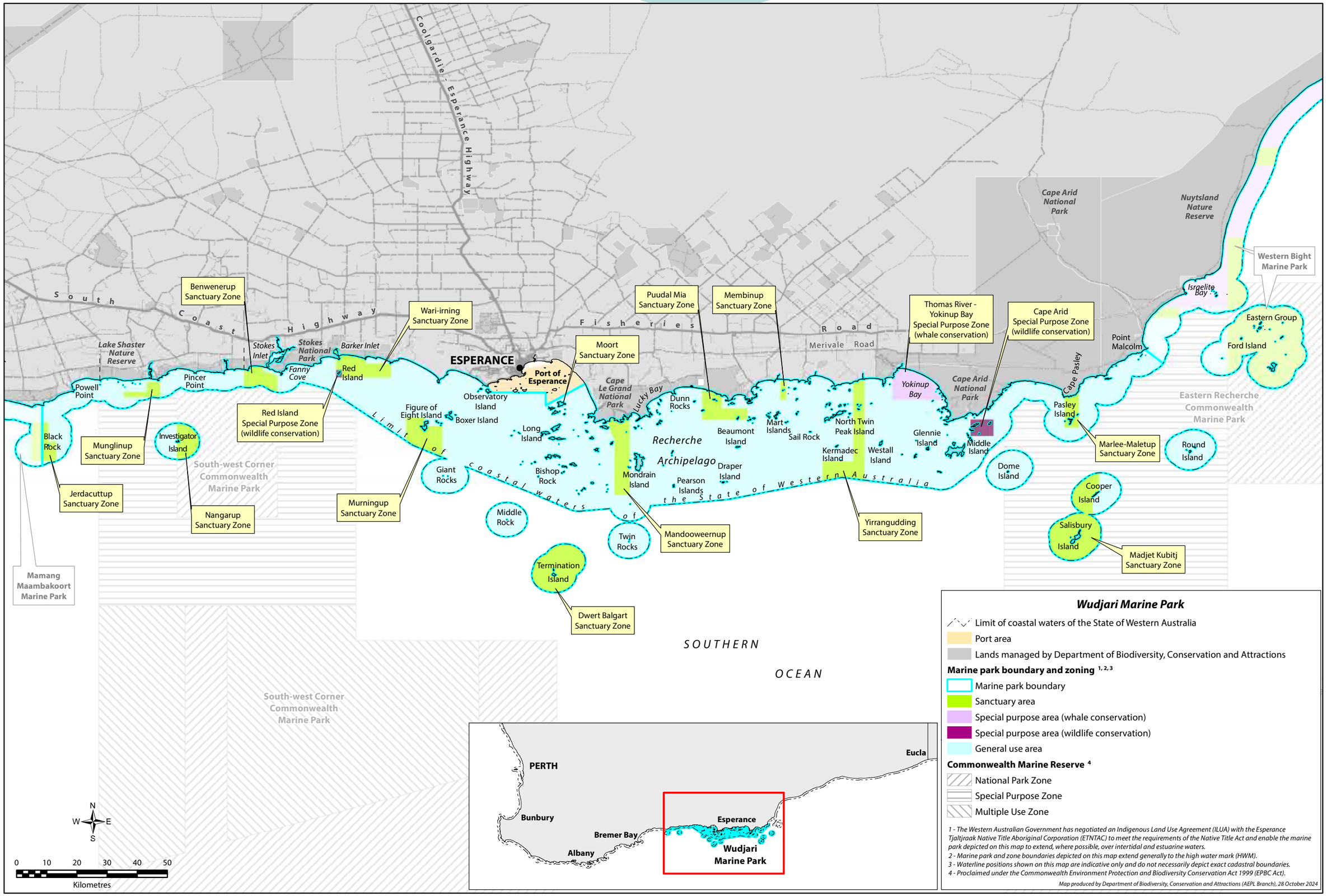
The zoning scheme recognises and allows for recreation and tourism and allows for ongoing sustainable use by considering the needs of park users such as commercial and recreational fishers. Where possible, the zoning scheme has been designed to be easy for users to understand and comply with, for example, creating zones with straight line boundaries which align with degrees of longitude and latitude and/or aligning boundaries with prominent features on the coast or islands.

The national guidelines for establishing marine protected areas recommend that IMCRA bioregions form the basis for reserve design, with one or more examples of conservation features (e.g., habitats and ecosystems) found in each bioregion represented in highly protected zones (ANZECC, 1998). The Wudjari Marine Park falls within the IMCRA South Coast Mesoscale Bioregion. To complement the bioregional framework, a network-based approach was taken, considering the adjacent marine parks which were developed concurrently.

Ultimately a zoning scheme aims to ensure the marine park is managed to maintain ecosystem function and increase ecosystem resilience.

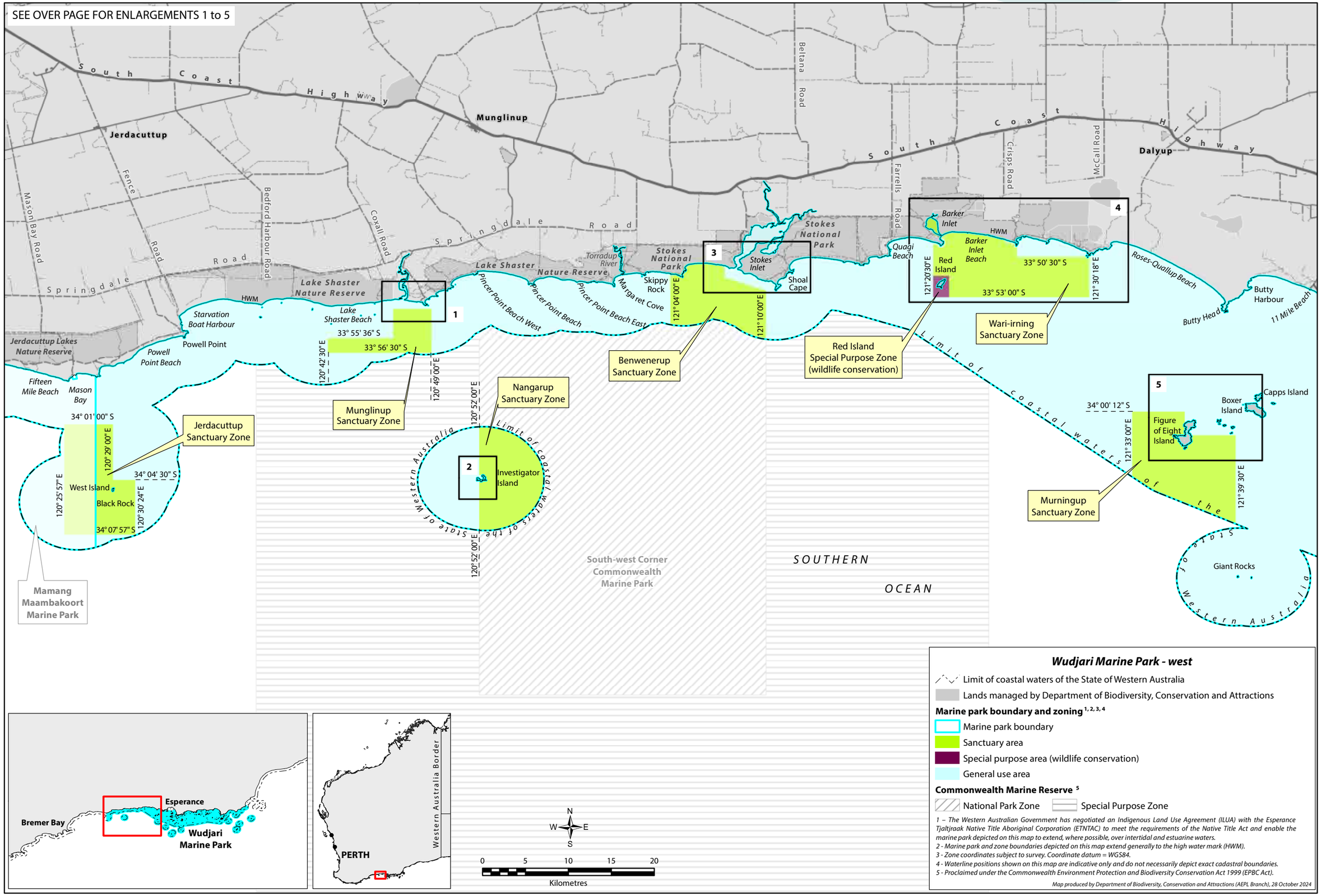


No separation between land and sea – Benwenerup Estuary. Courtesy of Xavier Leenders/ETNTAC



Map 9 – Zoning for Wudjari Marine Park - overview.

SEE OVER PAGE FOR ENLARGEMENTS 1 to 5



Wudjari Marine Park - west

Limit of coastal waters of the State of Western Australia

Lands managed by Department of Biodiversity, Conservation and Attractions

Marine park boundary and zoning [1, 2, 3, 4]

Marine park boundary

Sanctuary area

Special purpose area (wildlife conservation)

General use area

Commonwealth Marine Reserve [5]

National Park Zone

Special Purpose Zone

1 – The Western Australian Government has negotiated an Indigenous Land Use Agreement (ILUA) with the Esperance Tjaltjraak Native Title Aboriginal Corporation (ETNTAC) to meet the requirements of the Native Title Act and enable the marine park depicted on this map to extend, where possible, over intertidal and estuarine waters.

2 - Marine park and zone boundaries depicted on this map extend generally to the high water mark (HWM).

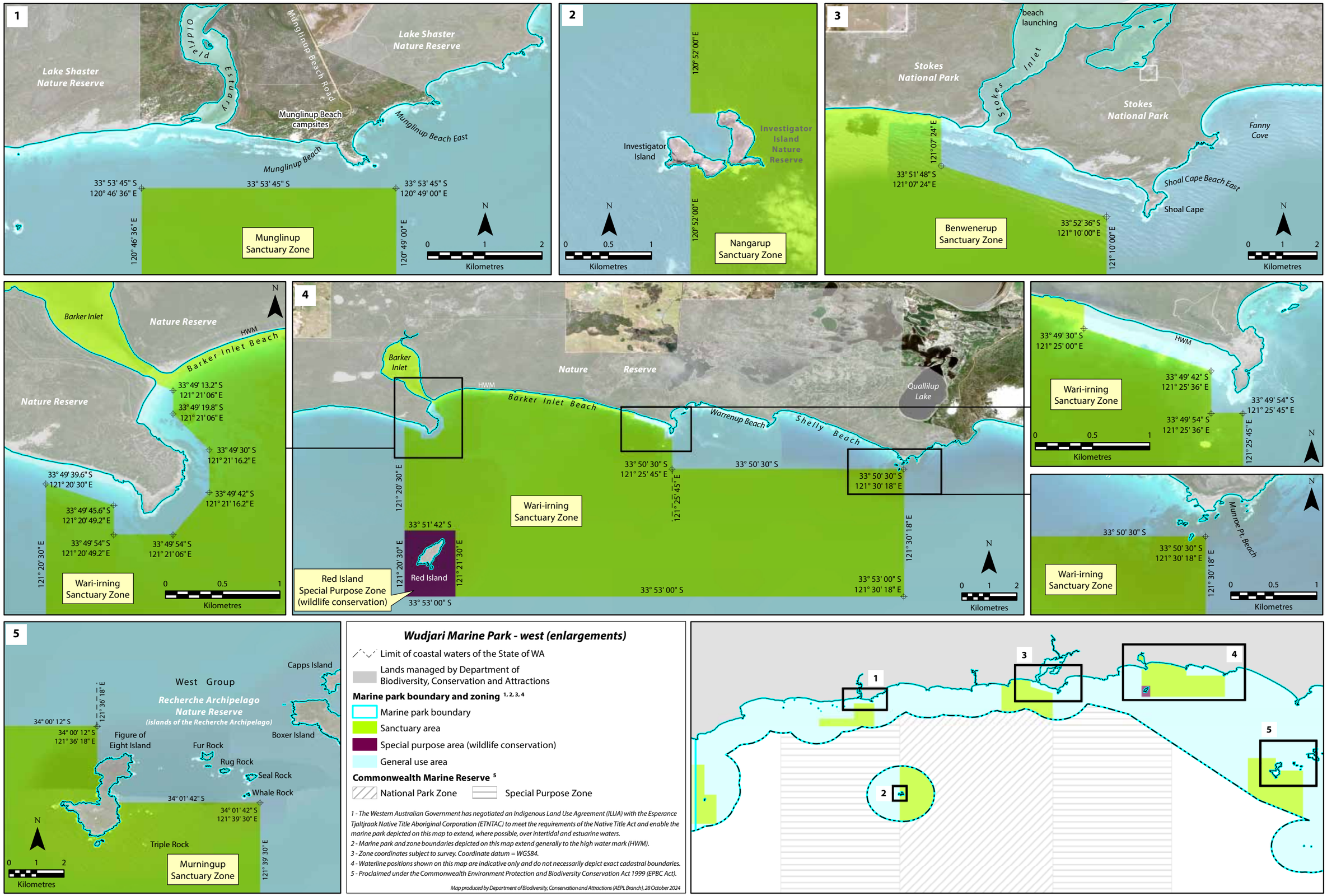
3 - Zone coordinates subject to survey. Coordinate datum = WGS84.

4 - Waterline positions shown on this map are indicative only and do not necessarily depict exact cadastral boundaries.

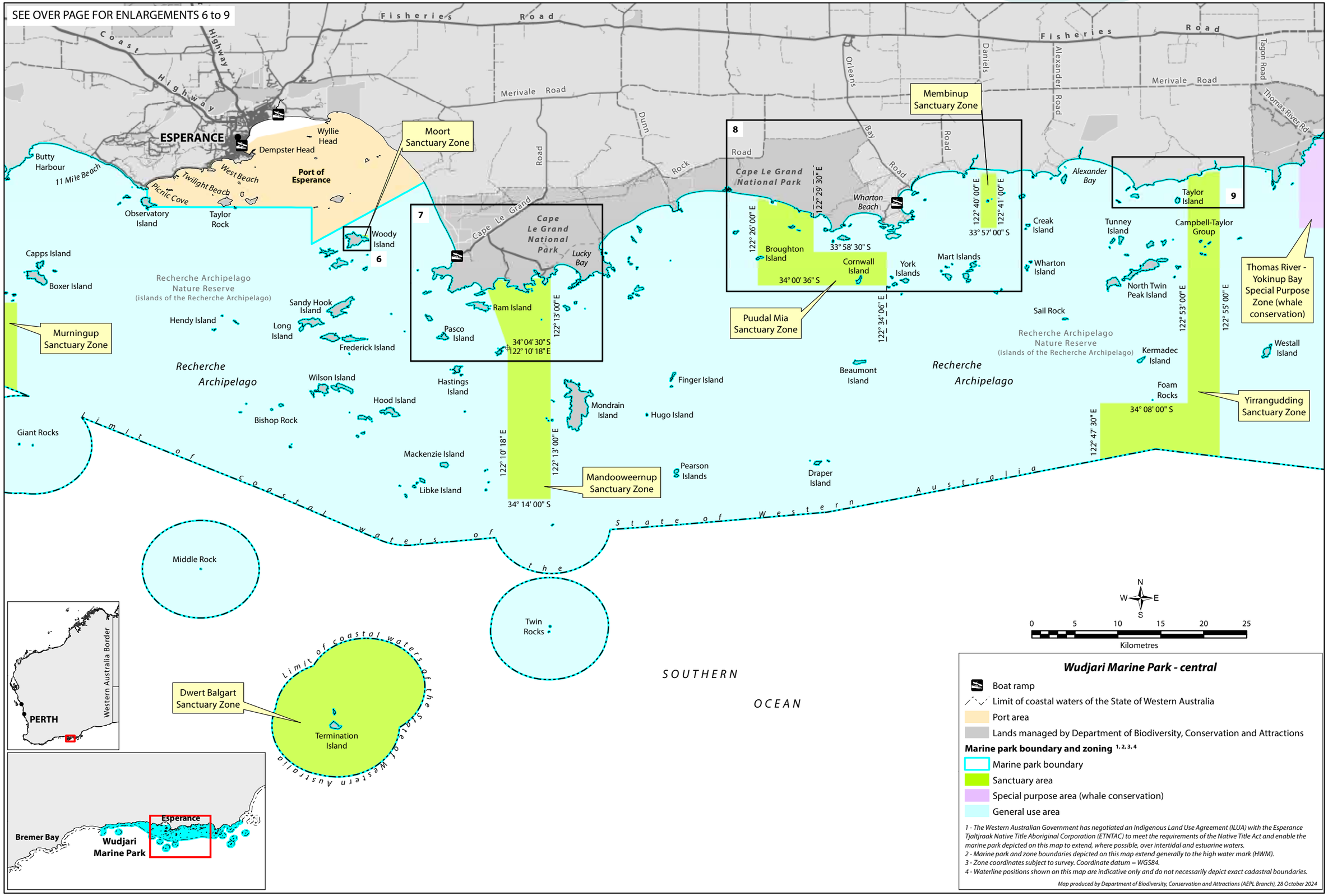
5 - Proclaimed under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

Map produced by Department of Biodiversity, Conservation and Attractions (AEPL Branch), 28 October 2024

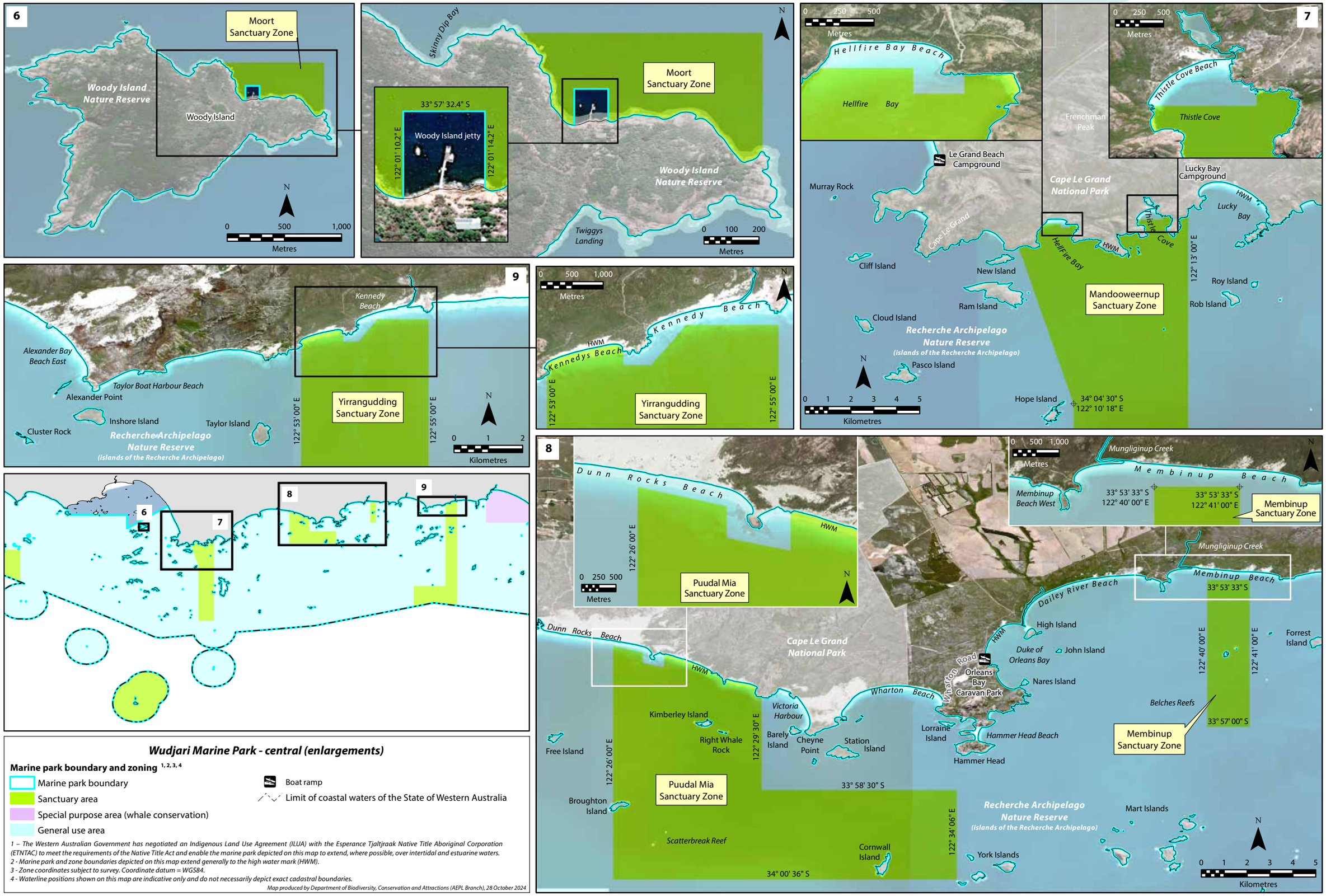
Map 10 – Zoning for Wudjari Marine Park - west.



Map 11 – Zoning for Wudjari Marine Park - west enlargements.



Map 12 – Zoning for Wudjari Marine Park - central.



Wudjari Marine Park - central (enlargements)

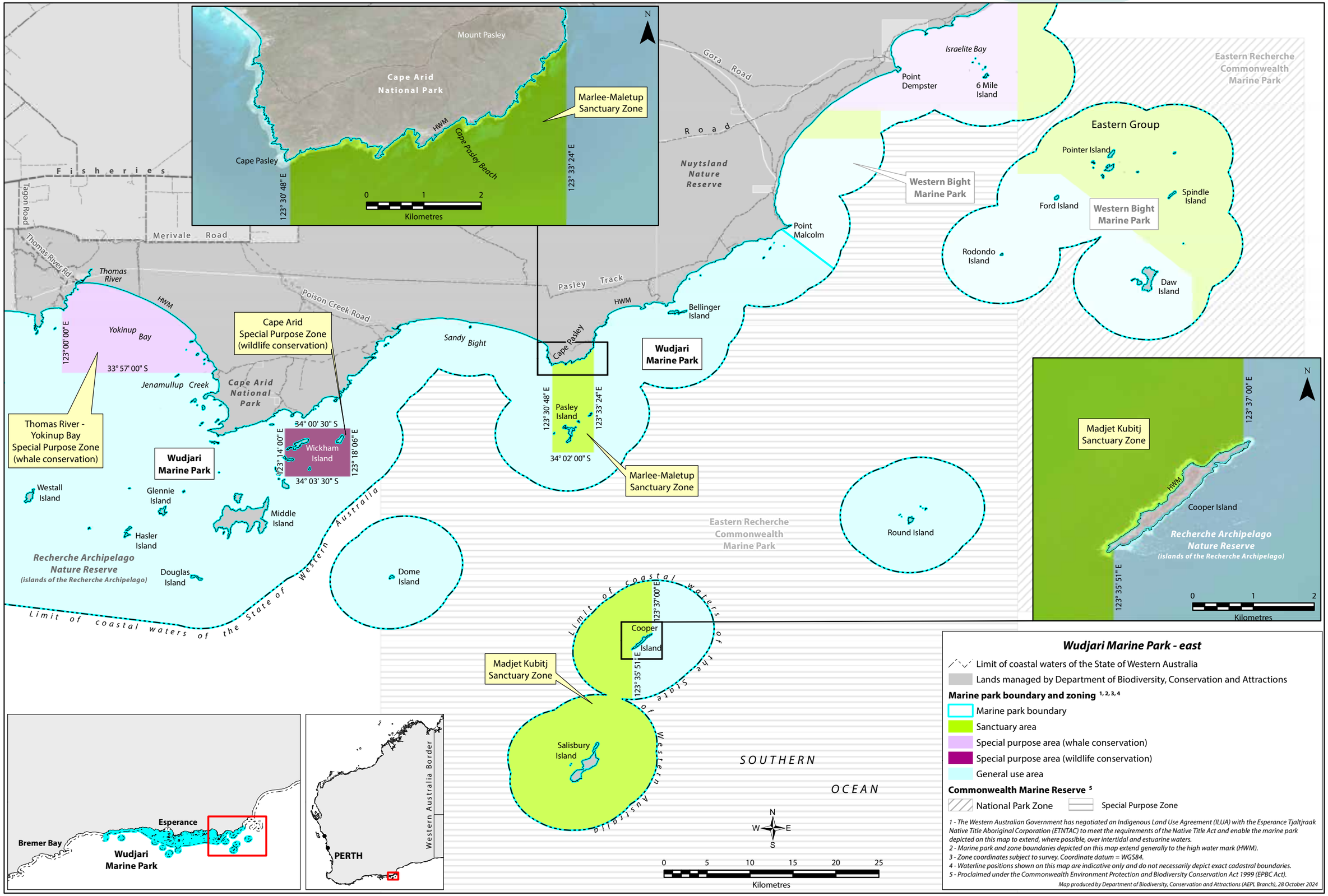
Marine park boundary and zoning [1, 2, 3, 4]

- Marine park boundary
- Sanctuary area
- Special purpose area (whale conservation)
- General use area
- Boat ramp
- Limit of coastal waters of the State of Western Australia

1 – The Western Australian Government has negotiated an Indigenous Land Use Agreement (ILUA) with the Esperance Tjaltjraak Native Title Aboriginal Corporation (ETNTAC) to meet the requirements of the Native Title Act and enable the marine park depicted on this map to extend, where possible, over intertidal and estuarine waters.
2 - Marine park and zone boundaries depicted on this map extend generally to the high water mark (HWM).
3 - Zone coordinates subject to survey. Coordinate datum = WGS84.
4 - Waterline positions shown on this map are indicative only and do not necessarily depict exact cadastral boundaries.

Map produced by Department of Biodiversity, Conservation and Attractions (AEPL Branch), 28 October 2024

Map 13 – Zoning for Wudjari Marine Park - central enlargements.



Map 14 – Zoning for Wudjari Marine Park - east.

9.3.2 Sanctuary zones

Sanctuary zones play an important role in protecting areas of critical habitat to maintain the healthy functioning of the complex ecosystems that make up the marine park. Sanctuary zones act as benchmarks to compare to other areas with similar habitats and ecosystems that are subject to extractive use. This allows managers to gain a better understanding of local and regional pressures on the marine environment over time. As such, sanctuary zones provide important opportunities for education, research and monitoring.

Sanctuary zones can help to improve ecosystem health by reducing pressures on the ecosystems protected, thereby increasing resilience to external pressures such as climate change.

Jerdacuttup Sanctuary Zone

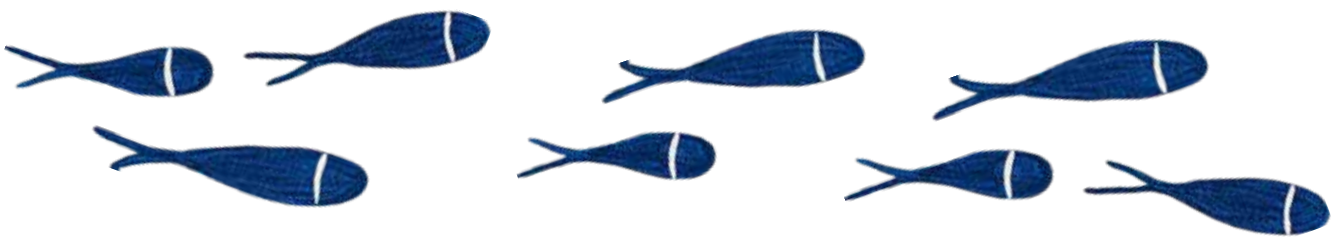
Jerdacuttup Sanctuary Zone (approximately 7,398 hectares in total) includes areas across both the Mamang Maambakoort Marine Park (approximately 3,884 hectares) and the Wudjari Marine Park (approximately 3,514 hectares). The sanctuary zone protects deep water pelagic habitats (to around 70m), representative examples of low profile macroalgal limestone reef and soft sediment communities, and ecologically important areas such as breeding, pupping and foraging areas for Australian sea lions and long-nosed fur seals. This zone protects species such as seadragons that are genetically distinct from others recorded further west. Cultural values such as artefacts of high cultural significance are also protected from extractive activities.

Munglinup Sanctuary Zone

The Munglinup Sanctuary Zone (approximately 2,932 hectares) protects representative examples of marine habitats including high and low profile macroalgal and limestone reef and soft sediment communities. Depths in the zone can reach 50m. The zone also helps to protect an area of Wudjari Country of high biocultural significance.

Nangarup Sanctuary Zone

The Nangarup Sanctuary Zone (approximately 6,022 hectares) surrounds the eastern side of Investigator Island and is characterised by steeply sloping granitic shores surrounded by soft sediment and shore and reef habitats. The sanctuary zone provides complementarity to the Commonwealth South-west Corner Marine Park and protects a range of hard and soft-substrate communities across a broad range of depths and exposures, and is particularly important for representing deeper water habitats with complex bathymetry, to depths of 70–80m. This sanctuary zone protects important breeding and foraging areas for Australian sea lions, long-nosed fur seals and little penguins, as well as a diverse range of fish species. The sanctuary zone helps to protect an area of Wudjari Country with high biocultural significance.



Benwenerup Sanctuary Zone

The Benwenerup Sanctuary Zone (approximately 5,656 hectares) has a range of shoreline types, from hard and steeply sloping, to soft and low gradient shorelines with shallow intertidal reef platforms. The zone protects a diverse range of communities including high and low-profile reef communities running parallel to the shore and shallow/intertidal reef platforms and lagoons. Representative examples of seagrass and nearshore soft sediment communities in the South Coast Bioregion are also protected. The zone is also highly important for representing a variety of mixed soft and hard sediment habitats. The locality of the Benwenerup Sanctuary Zone between the South-west Corner Marine Park in Commonwealth waters, and the terrestrial Stokes National Park provides continuous protection of important habitats from terrestrial to offshore areas.

Wari-irning Sanctuary Zone

The Wari-irning Sanctuary Zone (approximately 8,656 hectares) marks a transition in geology and geomorphology from a limestone-dominated coast to the west and granitic bedrock to the east. Depths in the zone reach 50m. The zone protects representative examples of habitats including macroalgal reef, saltmarsh and soft sediment communities. Barker Inlet, an important estuarine system surrounded by nature reserve, also lies within this zone. The diversity of habitats protected range from hard and steeply sloping cliffs to soft and low gradient shorelines.

Murningup Sanctuary Zone

The Murningup Sanctuary Zone (approximately 9,053 hectares) protects representative examples of marine habitats at different depths (0 – >80 m) in the South Coast Bioregion. The sanctuary zone has very high habitat diversity, including high and low-profile reefs with macroalgae and filter feeders, rhodolith, and soft sediment communities. The sanctuary zone protects breeding and foraging areas for a variety of birds, including little penguins, great-winged petrels, flesh-footed shearwaters, short-tailed shearwaters, Cape Barren geese, silver gulls and Pacific gulls. Breeding and foraging areas for Australian sea lions and long-nosed fur seals are also protected in addition to ecologically important areas for leafy seadragons. The terrestrial components of the islands within the sanctuary zone are protected by the Recherche Archipelago Nature Reserve. The sanctuary zone also contributes to the protection of an area of Wudjari Country which has high biocultural significance.

Moort Sanctuary Zone

The Moort Sanctuary Zone (approximately 21 hectares) protects benthic habitats including seagrass, macroalgae and other reef habitats, filter feeders, and soft sediment areas. Sites of ecological importance in the Moort Sanctuary Zone include foraging for a variety of birds. The sanctuary zone helps to protect an area of Wudjari Country which has high biocultural significance.

The area surrounding Woody Island is a known hotspot for blue groper. Woody Island is an ecotourism destination, and wildlife viewing and sightseeing, swimming, snorkelling and diving can continue to be enjoyed. Fishing activities will continue to be permitted from the jetty in Shearwater Bay (unofficial name) adjacent to the ecotourism accommodation.

Mandooweernup Sanctuary Zone

The Mandooweernup Sanctuary Zone (approximately 11,168 hectares) protects a high diversity of habitats and species in the South Coast Bioregion across a range of different depths (0–70m). The zone includes seagrass, macroalgal, filter feeding, soft sediment and pelagic communities as well as the most extensive rhodolith communities in the marine park. The sanctuary zone protects important foraging areas for Australian sea lions, long-nosed fur seals, and a variety of birds, including the black-faced cormorant, Cape Barren goose, Caspian tern, flesh-footed shearwater, great-winged petrel, little penguin, Pacific gull, silver gull, white-bellied sea eagle and white-faced storm petrel. The area also includes breeding sites for leafy seadragons and is an important tourism destination popular for diving and snorkelling. The sanctuary zone helps to protect an area of Wudjari Country that has high biocultural significance. Diving, snorkelling, boating, wildlife watching, swimming and surfing can still be enjoyed in the sanctuary zone. The sanctuary zone provides complementarity with the adjacent Cape Le Grand National Park.

Dwert Balgart Sanctuary Zone

The Dwert Balgart Sanctuary Zone (approximately 17,158 hectares) protects a range of habitats including macroalgae and reefs at different depths and exposures in the South Coast Bioregion, including the deepest area of the marine park and closest to the continental shelf at 100m. Recent research indicates that filter feeding communities in this zone have particularly high diversity and biomass. Offshore breeding and foraging areas for Australian sea lions, long-nosed fur seals, little penguins and great-winged petrels are protected in this zone. The Dwert Balgart Sanctuary Zone abuts the Recherche Archipelago Nature Reserve, providing protection across the marine and terrestrial interface.

Puudal Mia Sanctuary Zone

The Puudal Mia Sanctuary Zone (approximately 7,712 hectares) protects a range of communities including reef, seagrass, macroalgae, filter feeding, soft sediment and rhodolith communities. It provides protection and connectivity to nearshore seagrass habitats and offshore reef habitats and links to the adjacent Cape Le Grand National Park and Recherche Archipelago Nature Reserve. It protects breeding and foraging areas for the Australian sea lion, Cape Barren goose, Caspian tern, fairy tern, flesh-footed shearwater, little penguin, Pacific gull, white-bellied sea eagle, white-faced storm petrel and sooty oystercatcher; and important habitats for leafy seadragons. Extensive *Turbinaria* coral reefs that support unique fish assemblages are also present at Cornwall Island. The sanctuary zone also helps to protect an area of Wudjari Country with high biocultural significance. Diving, snorkelling, boating, wildlife watching, swimming and surfing can all be enjoyed in the sanctuary zone.

Membinup Sanctuary Zone

The Membinup Sanctuary Zone (approximately 980 hectares) protects a range of communities, including filter feeding and soft sediment communities and is critical for the representation of seagrass communities in the South Coast Bioregion across a range of depths and gradients. It protects foraging areas for little penguins and white-faced storm petrels. The sanctuary zone also helps to protect an area of Wudjari Country that has high biocultural significance. Boating and wildlife watching can still be enjoyed in the sanctuary zone.

Yirrangudding Sanctuary Zone

The Yirrangudding Sanctuary Zone (approximately 14,913 hectares) is characterised by complex bathymetry. It protects representative examples of seagrass, macroalgae, filter feeding and soft sediment communities. Ecological areas of importance protected in this zone include breeding and foraging areas for Australian sea lions, long-nosed fur seals, Cape Barren geese, flesh-footed shearwaters, little penguins, little shearwaters, Pacific gulls and short-tailed shearwaters. The sanctuary zone provides complementarity with the Recherche Archipelago Nature Reserve. The sanctuary zone also helps to protect an area of Wudjari Country with high biocultural significance. Diving, snorkelling, boating, wildlife watching, swimming and surfing can still be enjoyed in the sanctuary zone.

Marlee-Maletup Sanctuary Zone

The Marlee-Maletup Sanctuary Zone (approximately 4,259 hectares) consists of a unique gneissic geology and complex bathymetry resulting in a range of habitats and communities in this area of the South Coast Bioregion. This zone protects representative examples of seagrass, macroalgae, reef and soft sediment communities and ecologically important breeding and foraging areas for Australian sea lions, long-nosed fur seals and great-winged petrels around Pasley Island and islets. The sanctuary zone also helps to protect an area of Wudjari Country of high biocultural significance. Diving, snorkelling, boating, wildlife watching, swimming and surfing can still be enjoyed in the sanctuary zone. The sanctuary zone complements the adjacent Cape Arid National Park/Nuytsland Nature Reserve and islands in the Recherche Archipelago Nature Reserve.

Benwenerup Estuary and inshore coastal zone. Courtesy of Xavier Leenders/ETNTAC

Madjet Kubitj Sanctuary Zone

The Madjet Kubitj Sanctuary Zone (approximately 24,122 hectares) has a unique gneissic geology which connects underwater to the coast at Cape Pasley. The complex bathymetry in this zone results in a range of habitats and communities in this area of the South Coast Bioregion. It protects representative examples of macroalgae, reef, soft sediment, seagrass and pelagic communities and ecologically important breeding, pupping and foraging areas for Australian sea lions and long-nosed fur seals on Salisbury and Cooper islands. The islands are also a known high-density area for white sharks. The sanctuary zone also helps to protect an area of Wudjari Country that high biocultural significance. The sanctuary zone provides connectivity with island habitats and complementarity with other protected areas, including islands in the Recherche Archipelago Nature Reserve and the Eastern Recherche Marine Park in Commonwealth waters.

9.3.4 Special purpose zones (wildlife conservation)

Red Island Special Purpose Zone (wildlife conservation) (approximately 338 hectares) protects a variety of ecologically important areas including breeding, and foraging areas for Australian sea lions and seabirds. Likewise, the Cape Arid Special Purpose Zone (wildlife conservation) (approximately 3,377 hectares) minimises impacts to Australian sea lions at known breeding sites, and provides a high level of protection for seabird rookeries and foraging areas. Representative examples of macroalgae reef, filter feeders and seagrass communities are protected in this zone. Commercial and recreational fishing – other than hand collection of abalone, crustacean, octopus, aquarium fish and specimen shells – are prohibited in these zones.

9.3.5 Special purpose zone (whale conservation)

The Thomas River–Yokinup Bay Special Purpose Zone (whale conservation) (approximately 11,514 hectares), provides management measures that enhance protection in a portion of the marine park used by southern right whales for breeding and calving. This zone conserves the sheltered bays which are highly important to southern right whales and provides protection to a range of habitats.

9.3.6 General use zones

All areas in the marine park not included in sanctuary or special purpose zones are zoned for general use (approximately 669,954 hectares). Management of general use areas is provided for through mechanisms under the CALM Act and CALM Regulations, as well as the implementation of management strategies. The general use areas provide for a higher level of scrutiny over development activities and allow a range of uses including recreational and commercial fishing, and aquaculture.

9.4 Permitted uses

The permitted uses table (Table 1) summarises the range of permitted activities in the different zone types in the marine park. Users should be aware that many of the listed activities are also regulated under complementary legislation and regulations, such as those regarding wildlife interactions, the disposal of sullage, and size and bag limits for recreational fishing. In accordance with the CALM Act, a licence is required to carry out some activities (e.g., commercial tourism and research) in State marine parks. The implementation of the management plan may include management actions such as temporal closures. Development of such management actions will aim to limit the impacts on the permitted activities whilst meeting the management objectives.

An activity marked as 'assess' indicates an assessment is required by the appropriate agencies in accordance with relevant legislation and the management objectives and targets in this plan.

Any changes to the permitted activities and uses table requires a statutory two-month public comment period and approvals from the Minister for Environment, Minister for Fisheries and Minister for Mines and Petroleum.

Preliminary inspection of a seafloor sediment core. Courtesy of Genevieve Carey/ETNTAC

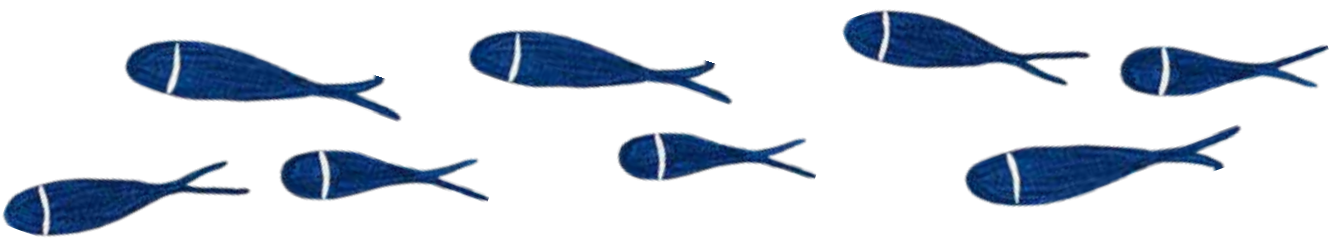
Table 1. Summary of permitted uses for the Wudjari Marine Park.

Activity	Sanctuary zones	Special purpose zones (wildlife conservation) [a]	Special purpose zones (whale conservation) [b]	General use zones
Customary				
Customary activities (e.g., sustainable harvesting and fishing)	Yes [a]	Yes [a]	Yes [a]	Yes [a]
Commercial fishing and aquaculture [c]				
Commercial abalone fishing	No	Yes [d]	Yes	Yes
Commercial crustacean fishing	No	No	Yes	Yes
Commercial estuarine fishing	No	No	Yes	Yes
Commercial line and trap fishing	No	No	Yes	Yes
Commercial nearshore net fishing	No	No	Yes	Yes
Commercial purse seine fishing	No	No	Yes	Yes
Commercial salmon fishing	No	No	Yes	Yes
Commercial demersal longline (shark) fishing	No	No	Yes	Yes
Commercial demersal gillnet (shark) fishing	No	No	Yes	Yes
Commercial trawl fishing (scallop)	No	No	Yes	Yes
Commercial octopus fishing	No	No	Yes	Yes
Commercial specimen shell fishing	No	Yes [d]	Yes	Yes
Commercial marine aquarium fishing	No	Yes [d]	Yes	Yes
Commercial fishing (other)	No	No	Yes	Yes
Aquaculture	No	No	No	Yes
Commercial - other				
Ground-disturbing mining and petroleum exploration and development [e]	No	No	No	Assess
Non-ground-disturbing activities including geophysical surveys, geological mapping, sampling and geochemical surveys [f] [g]	No	No	No	Assess
Ship loading and other mining related infrastructure (e.g., ship loading docks, cabling or pipelines)	No	No	No	Assess
General marine infrastructure (e.g., groynes, jetties and boat launching facilities)	No	No	Assess	Assess
Artificial structures	No	No	No	Assess
Dredging and dredge spoil dumping	No	No	Assess [h]	Assess
Scenic flights (charter) [c]	Yes	Yes	Yes	Yes
Commercial tour operators – fishing [c]	No	No	Yes	Yes
Commercial tour operators – non-extractive (e.g., wildlife viewing) [c]	Yes	Yes	Assess [i]	Yes
Commercial use of remotely piloted aircraft (drones) [c]	Assess	Assess	Assess	Assess
Commercial (other) [c]	Assess	Assess	Assess	Assess
Wildlife/fish feeding	No	No	No	No

Recreational				
Boating (motorised and non-motorised)	Yes	Yes	Yes	Yes
Nature appreciation and wildlife viewing	Yes	Yes	Yes	Yes
Recreational fishing [c- from a boat]	No	Yes [d]	Yes	Yes
Remotely piloted aircraft (drone) launching and landing [j]	Yes	Yes	Yes	Yes
Recreational live mollusc shell collecting	No	No	No	Yes
Other use				
Access	Yes	Yes	Yes	Yes
Vessel transit	Yes	Yes	Yes	Yes
Navigation aids	Yes	Yes	Yes	Yes
Research and monitoring [c]	Yes [k]	Yes [k]	Yes	Yes
Anchoring [l]	Yes	Yes	Yes	Yes
Mooring	Assess	Assess	Assess	Yes
Seaplane and helicopter launching and landing [m]	Assess	Assess	Assess	Assess
Vessel sewage discharge and de-ballasting	No	No	No	Yes [n]

Permitted activities provisions

[a] Customary take is confined to Wudjari Traditional Owners, or where Traditional Owners have provided consent to another Aboriginal person or group.
[b] Seasonal restrictions to vessels such as speed limits may apply.
[c] Licence or permit required under the *Conservation and Land Management Act 1984* and/or *Fish Resources Management Act 1994* and related regulations.
[d] Hand collection only.
[e] Ground-disturbing mining and petroleum exploration and development activities include any activity that disturbs the land, seabed and/or subsoil within the marine park (e.g., drilling).
[f] Geophysical surveys will be assessed by the Department of Energy, Mines, Industry Regulation and Safety.
[g] Non-ground disturbing exploration activities are permitted in Munglinup warden (Oldfield Estuary) inlet.
[h] Activity permitted if activity is shown to be compatible with the specified purpose of the zone. Only small-scale dredging for the purpose of public access and safety will be considered.
[i] ny new proposals to also be referred to marine park managers.
[j] Recreational use of RPAs must comply with Civil Aviation Safety Authority (CASA) rules as well as legal requirements under the CALM Act, BC Act 2016, and the *Bushfires Act 1954* and related regulations. Restrictions on the use of RPAs may be applied in some areas or for certain periods of time subject to the Civil Aviation Regulations 1988 and the Civil Aviation Safety Regulations 1998, under the *Civil Aviation Act 1988*.
[k] Non-extractive/destructive research and monitoring activities only.
[l] Except where restrictions are put in place for the protection of ecological and/or cultural values.
[m] Lawful authority must be obtained to launch, land or touchdown in an aircraft on CALM Act lands and waters.
[n] Only in gazetted sewage discharge areas.
- Consideration will be given where existing permissions relating to animal exercise areas are in effect.
- 'Assess' is denoted where matters require statutory assessment and approval according to other regulatory processes, or where an activity is to be assessed against the primary conservation purpose of a zone.



9.5 Community stewardship and compliance

Education and public participation will increase public awareness and understanding of the values and management issues in the marine park. Increased understanding helps to ensure appropriate behaviour and develop a sense of community stewardship and lead to better protection and management of the park. While most users comply with management arrangements when they understand why they are implemented, it is important to monitor compliance and mitigate inappropriate or illegal behaviour. It will also be important for marine park users to play self-regulatory and peer surveillance roles.

Summary of management arrangements for community stewardship and compliance			
Management objectives	• To enhance community understanding of and support for the marine park and achieve a high level of compliance with regulations, permitted uses and other management arrangements within the marine park. • To acknowledge the strong connection of the marine environment to the identities of local communities and to promote stewardship of the marine park.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Install zone markers and educational signage for the marine park where appropriate. [DPIRD for signage]	Education and interpretation	H
	2. Develop and implement a collaborative patrol and enforcement program. **[DPIRD]**	Patrol and enforcement	H
	3. Ensure marine park users, including researchers, obtain and comply with appropriate formal permissions. [DPIRD]	Patrol and enforcement	As required
	4. Monitor, promote and enforce compliance with fisheries and marine park legislation. **[DPIRD]**	Patrol and enforcement	H
	5. Encourage voluntary compliance and peer enforcement of regulations. **[DPIRD, DoT]**	Education and interpretation	H
	6. Develop and implement a public participation plan for the marine park, which encourages community involvement in management through a range of opportunities including in education, research and monitoring.	Public participation	H
	7. Develop an education and interpretation plan which communicates: • the importance of the marine park's values • the purposes of management zones and regulations • appropriate behaviour to reduce human impacts and ensure public safety • considers all education and interpretation strategies listed in the joint management plan.	Education and interpretation	H
	8. Maintain a database of compliance statistics and adapt management strategies to address any non-compliance issues. **[DPIRD]**	Patrol and enforcement	H
	9. Identify opportunities to provide specific training for Wudjari to build the skills required to assist with compliance and education activities on the South Coast. [DPIRD]	Management framework	H
	10. Identify opportunities to employ Wudjari fisheries compliance officers on the South Coast to assist in fisheries patrols. **[DPIRD]**	Management framework	H
Performance measures	To be determined		
Target	To be determined		

10. Assessing management effectiveness

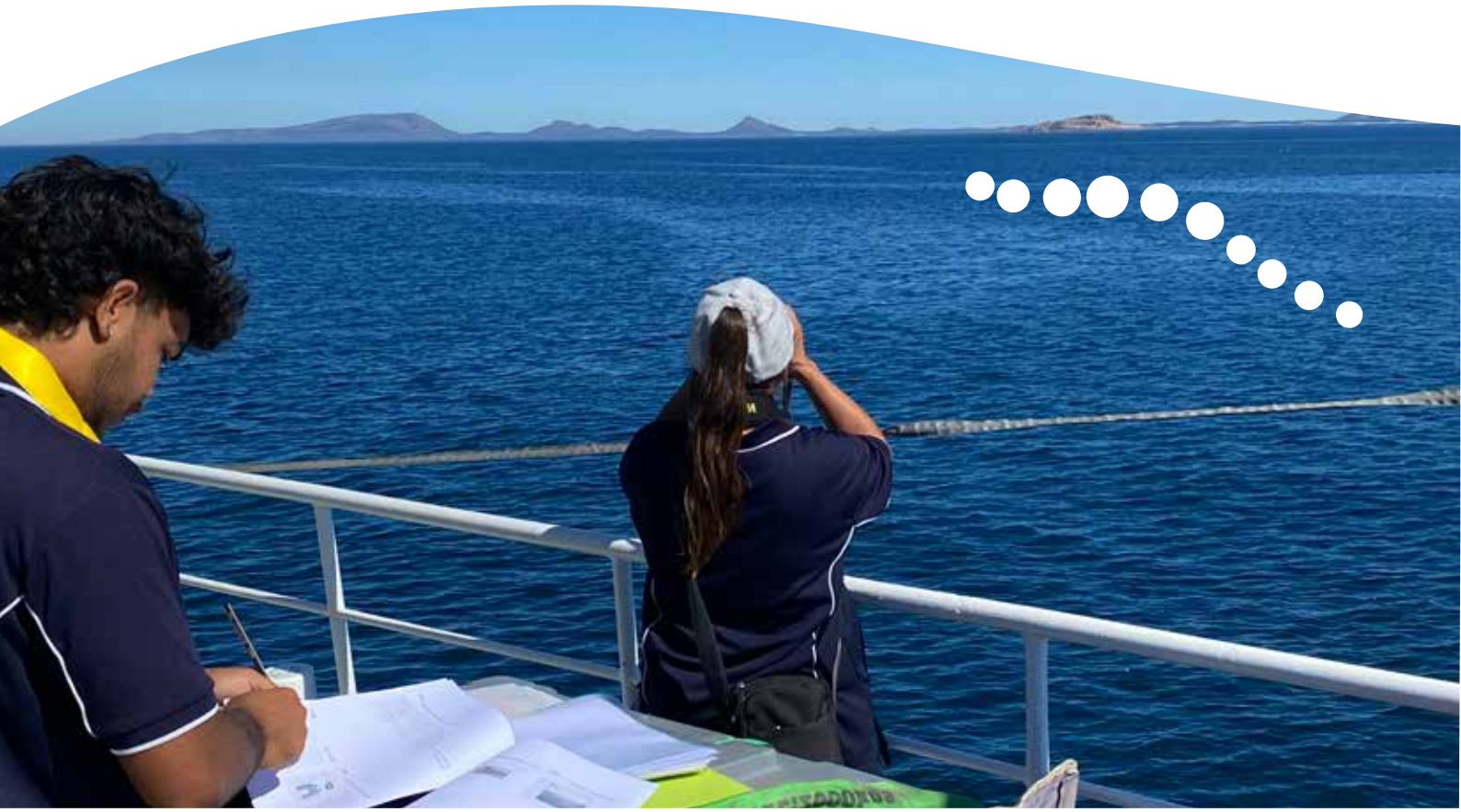
Progress in implementing the joint management plan and in assessing management effectiveness against stated objectives will be regularly reviewed through a formal process consisting of annual management effectiveness reports and periodic and ten-year reviews of the joint management plan.

10.1 Annual reviews

The prioritised management strategies outlined in the joint management plan will be implemented by the joint management partners, primarily through the collaboration of DBCA's Esperance district and Marine Science Program, Wudjari Traditional Owners, rangers and other specialist branches guided by the JMB. The JMB with the assistance from these partners and DPIRD will prepare an annual review of the implementation of the joint management plan for consideration by the ETNTAC and the CPC. Key parts of the annual review will include:

- progress in implementing joint management plan strategies
- assessment of the condition of values, the pressures acting on values, management response and management effectiveness
- identifying issues affecting implementation
- resource allocation.

As part of the annual review process, ETNTAC will also provide an update to the Wudjari community on the implementation of the joint management plan and condition of Wadarn Boodja.



Tjaltjraak Rangers are certified marine mammal observers. Courtesy of David Guilfoyle/ETNTAC

10.2 Periodic assessments

The CPC has a statutory responsibility to periodically assess the implementation and effectiveness of joint management plans. The JMB will provide information from monitoring and other operational programs to the CPC to enable an assessment of the plan's implementation.

10.3 Revision of the joint management plan

The joint management plan will guide joint management of the marine park for 10 years, or until a statutory revision is undertaken and a new joint management plan is prepared. If such a revision does not occur by the end of the plan's specified lifespan, the plan will remain in force in its original form unless it is revoked by the Minister for Environment, or a new co-designed plan is approved. Full public consultation will occur at the time of revision, and endorsement of a revised joint management plan will be sought from the JMB and CPC. Approval of the Minister for Environment following concurrence from the Minister for Mines and Petroleum and Minister for Fisheries is also required.

Summary of management arrangements for assessing management effectiveness			
Management objectives	To assess and evaluate management effectiveness.		
		Management program	**Priority**
Management strategies Joint management partners are the lead for all strategies. Supporting agencies are listed in brackets. If agencies are required to take a lead role, their name is in bold.	1. Develop and implement a management effectiveness reporting process that is suitable in a joint management setting and ensure results are reported back to the Wudjari community. [CPC]	Management framework	H
	2. Support ETNTAC to conduct periodic reviews of the effectiveness of plan implementation in meeting cultural, capacity building, joint management effectiveness and other priority objectives.	Management framework	H
	3. Provide necessary information and support for the management effectiveness reporting process. [DPIRD]	Monitoring	H
	4. Implement management strategies to mitigate or stop any impacts from human activities within the marine park which are negatively impacting the values of the marine park. [DPIRD]	Management intervention and visitor services	As required

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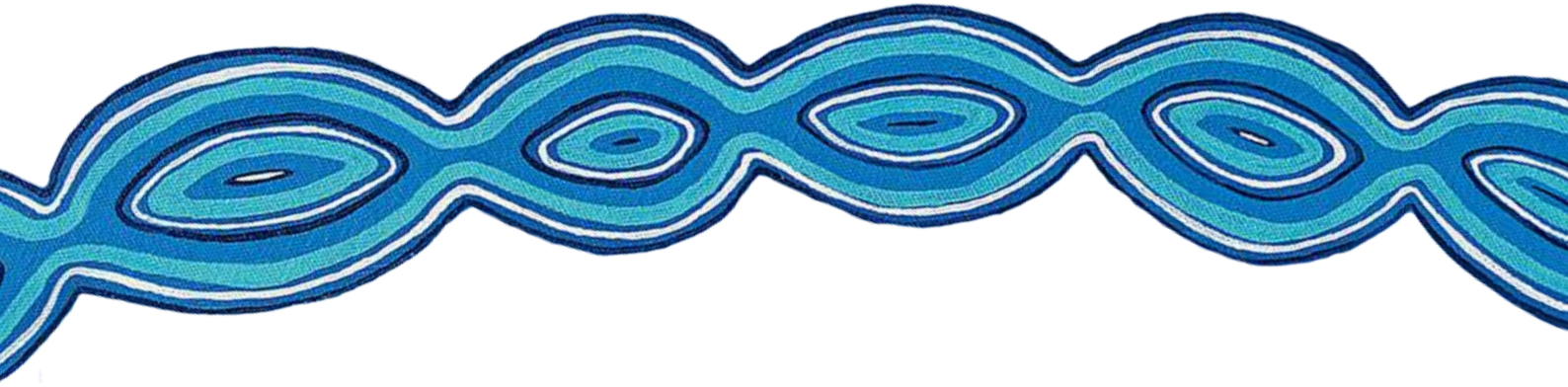


Appendix 1 – Design principles

Comprehensiveness: The full range of ecosystems, habitats and communities present within and across each bioregion are represented within the network.

Adequacy: The network includes enough of each component of biodiversity (enough of each habitat) to maintain a healthy functioning marine ecosystem.

Representativeness: Biodiversity features should be represented across their natural range, biological and genetic diversity and variability. For example, habitats and communities should be represented across a range of depths and across different wave exposures.

Precautionary principle: Lack of scientific certainty should not be used as a reason to postpone measures to protect the marine environment. A precautionary approach is a proactive (rather than reactive) approach designed to protect areas that are still in relatively good condition, helping to ensure they stay that way into the future. Where biodiversity data is limited, a precautionary approach uses surrogates (such as mapped and unmapped habitats, geomorphology or other physical or environmental gradients) for biodiversity.

Ecological importance, vulnerability and resilience: Biologically and ecologically important areas play an essential role in sustaining populations and maintaining ecosystem function. The inclusion of natural areas, with a higher degree of integrity and resilience, as well as areas with vulnerable habitats or vulnerable life stages, also help protect and sustain marine environments. Ecologically important features include known nursery, foraging, breeding and calving areas; areas that are unique, unusual or highly productive; and areas important for, or where known aggregations occur, of rare, threatened or protected species.

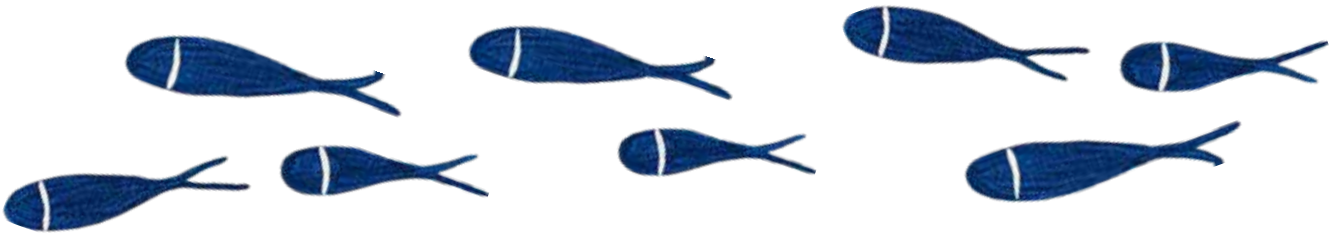
Connectivity: Components of a marine ecosystem are connected through tides, currents and the behaviour of plants and animals (DEH, 2009). Key considerations for connectivity may include dispersal ranges for different marine organisms; distances between and within marine parks and sanctuary zones; benthic-pelagic linkages; connections between catchments to the coast to deep water environments; physical oceanography, such as tides and currents; and foraging areas and migratory pathways for a range of marine animals.

Protect and conserve Aboriginal culture and heritage: This principle includes:

- conserving culturally significant sites and areas important for culturally significant species
- respecting and providing for ongoing connection to Country and culture, including customary activities
- where culturally appropriate, providing consistency with cultural laws, lore and protocols, including cultural management arrangements
- where culturally appropriate, contributing to raising awareness of Aboriginal culture and heritage values
- respecting current and future aspirations and arrangements for Sea Country, including opportunities for economic development, training and management.

Provide for ongoing ecologically sustainable use: The zoning scheme should:

- consider the full diversity of marine uses, including economic use, social use and ecosystem services
- have complementarity
- promote opportunities for recreation and appreciation of the marine environment
- provide for natural and maritime heritage values
- provide for education and research
- be designed so users can easily identify, understand and comply with zoning and management arrangements.



Appendix 2 – Commercial fisheries operating on the South Coast

South Coast Crustacean Managed Fishery (SCCMF)

The SCCMF extends from Augusta to the South Australian border. This multi-species, effort-controlled pot-based fishery targets southern rock lobster (*Jasus edwardsii*), western rock lobster (*Panulirus cygnus*) and deep-sea species such as giant crab (*Pseudocarcinus gigas*), crystal crab (*Chaceon albus*) and champagne crab (*Hypothalassia acerba*). This fishery is managed via limited entry, size limits and Individually Transferable Quota (How and Baudains, State of the Fisheries Report 2020/21).

Abalone Managed Fishery

Abalone species targeted by commercial abalone divers are greenlip (*Haliotis laevigata*), brownlip (*H. conicopora*) or Roe's (*Haliotis roei*) abalone on the south-west and South Coast of Western Australia. The abalone fishery is a dive fishery that operates in the shallow coastal waters off the coast, with the abalone collected by hand. This fishery is managed through Total Allowable Commercial Catches, meaning it is a quota-based fishery (Strain, Fabris and Jones, Status of the Fisheries Report 2020/21).

South Coast Estuarine Managed Fishery (SCEMF)

This fishery operates within the South Coast bioregion, with fishing activity occurring in 13 estuaries between Cape Beaufort on the south-west and the South Australian border. This fishery targets estuarine finfish species and blue swimmer crabs (*Portunus armatus*), with the main fishing methods being gill netting, purpose-designed crab traps and haul netting. This fishery is managed through input controls with restrictions on the number, length and mesh size of nets used, and the number of crab traps used, as well as size limits and temporal closures (Duffy, Harris, and Blay, State of the Fisheries Report 2020/21).

South Coast Salmon Managed Fishery (SCSMF)

This fishery operates between Cape Beaufort on the south-west and the South Australian border using beach seine nets to target Western Australian salmon (*Arripis truttaceus*). It is managed through input controls with restrictions on the type, length and mesh size of nets used, as well as size limits (Duffy, Harris and Blay, Status of the Fisheries Report 2020/21).

South Coast Purse Seine Managed Fishery (SCPSMF)

The SCPSMF operates between Cape Leeuwin on the south-west and the South Australian border. This fishery operates with purse seine nets to catch pilchards (*Sardinops sagax*) and other small pelagic fish and is managed through limited entry (with a restricted number of licences issued) and Total Allowable Commercial Catches (it is a quota-based fishery). There are also other input controls with restrictions on the number, length and mesh size of nets used, as well as size limits. There are five management zones for this fishery – King George Sound (Zone 1); Greater Albany (Zone 2); Bremer Bay and Esperance (Zones 3 and 4); and Augusta (Zone 5) (Norriss and Blazeski, Status of the Fisheries Report 2020/21).

South Coast Demersal Gillnet and Demersal Long Line Managed Fishery (SDGDLF)

This fishery operates between 33°S on the south-west to the South Australian border. Demersal gillnets are used to target primarily sharks with scalefish as a by-product, or operators can use demersal longline. The main targeted species include gummy (*Mustelus antarcticus*), dusky (*Carcharhinus obscurus*), whiskery (*Furgaleus macki*), and sandbar (*C. plumbeus*) sharks. This fishery is managed through the use of input controls with restrictions on the number, length, drop and mesh size of nets, and the size of hooks on longlines. There are also other controls in the form of limited effort and size limits (Braccini and Watt, Status of the Fisheries Report 2020/21).

South Coast Line and Fish Trap Managed Fishery (SCLFTMF)

The SCLFTMF operates between Black Point on the south-west and the South Australian border (excluding the waters of the South Coast Estuarine Fishery). The fishery is divided across four licence classes – Class A (line and hook); Class B (line and jig for squid); and Class C and D (fish trap in oceanic waters and King George Sound). This fishery is managed through limited entry (with a restricted number of licences issued) and input controls with restrictions of the number of lines and hooks, jigs and traps used, as well as size limits (Duffy, Harris, and Blay, State of the Fisheries Report 2020/21).

South Coast Nearshore Net Managed Fishery (SCNNMF)

Operators are licenced to fish by net in the SCNNMF between Black Point and the South Australian border. Scalefish and squid (*Sepioteuthis australis*) are targeted using beach seine, haul and gill nets – this excludes Western Australian salmon and small pelagic fish. This fishery is managed through limited entry (with a restricted number of licences issued) and input controls with restrictions on the number, length and mesh size of nets, as well as size limits (Duffy, Harris, and Blay, State of the Fisheries Report 2020/21).

Octopus Interim Managed Fishery (OIMF)

The OIMF is a statewide fishery that targets the western rock octopus (*Octopus djinda*) using trigger traps or unbaited, passive shelter pots. Commercial octopus catch is harvested from three different fisheries, however the majority of commercial catch comes from the OIMF. This fishery is managed through input controls with restrictions of the number of pots or traps permitted (Newman, Wise, Santoro, and Gaughan, State of the Fisheries Report 2020/21).

Specimen Shell Managed Fishery (SSMF)

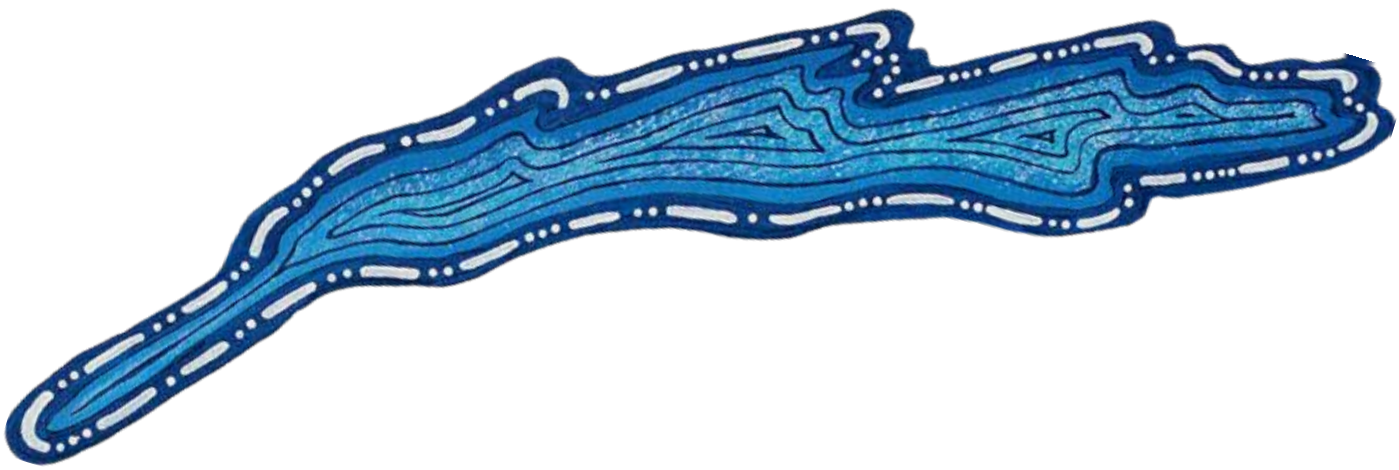
Shell licence holders can operate throughout Western Australia. About 200 species of specimen shell are collected each year, using a variety of methods. The main methods are by hand, by wading along coastal beaches or, in some instances, by use of remotely operated underwater vehicles. While the fishery covers the entire Western Australian coastline, some concentration of effort occurs in areas adjacent to population centres such as Broome, Exmouth, Shark Bay, Geraldton, Perth, Mandurah, the Capes area, Albany, and Esperance. This fishery is managed through limited entry (with a restricted number of licences issued) and input controls with restrictions on the gear used as well as closed areas (Hart, Bruce, and Steele, State of the Fisheries Report 2020/21).

Marine Aquarium Fish Managed Fishery (MAFMF)

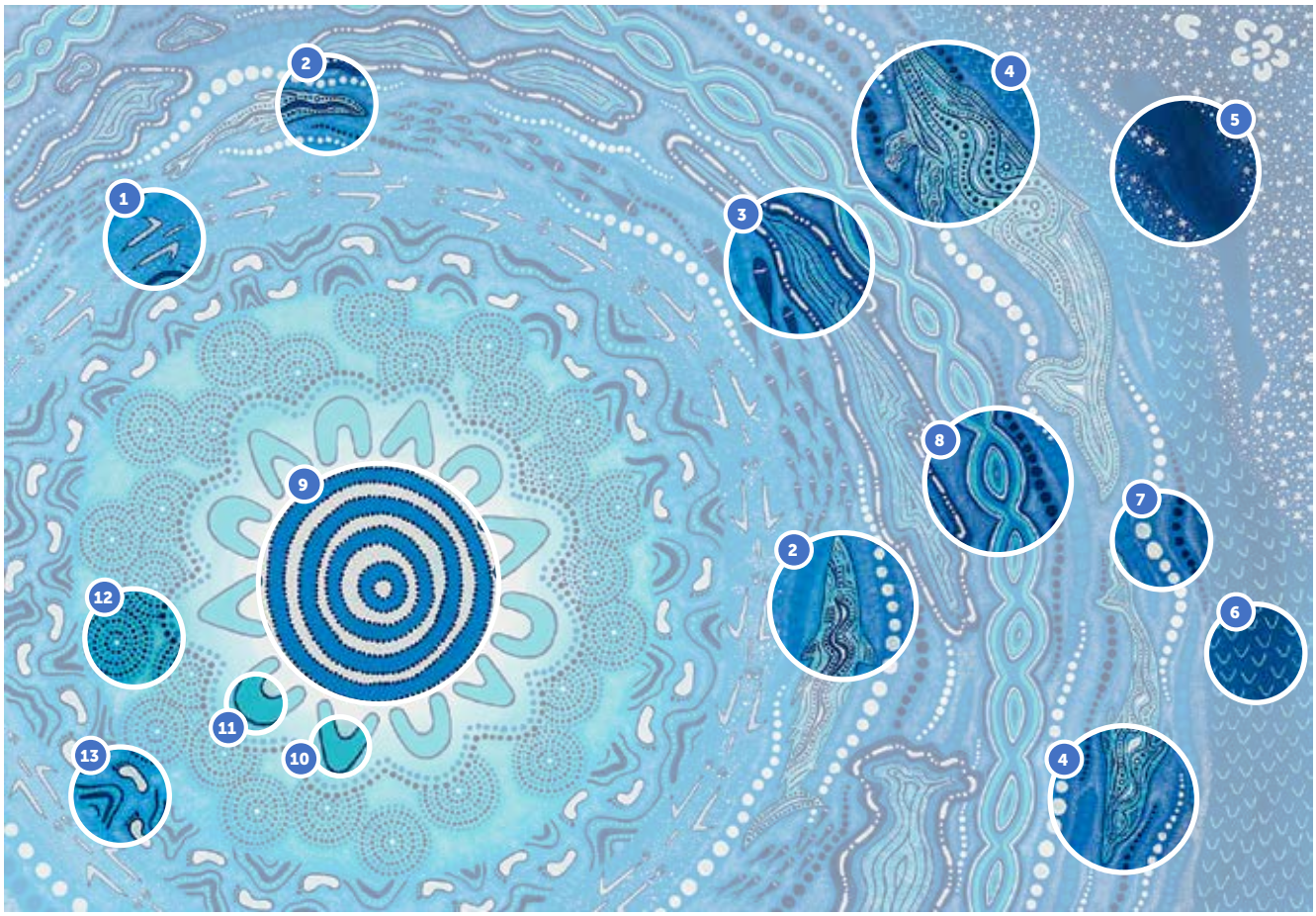
The MAFMF operates in all State waters between the Northern Territory border and South Australian border. The fishery is typically more active in waters south of Broome with higher levels of effort around the Capes region, Perth, Geraldton, Exmouth, Dampier and Broome. The MAFMF resource potentially includes more than 1,500 species of marine aquarium fish and uses small nets or hand collection techniques. Operators in the MAFMF are also permitted to take coral, live rock, algae, seagrass, and invertebrates (Newman, Bruce and Bissell, State of the Fisheries Report 2020/21).

South Coast Trawl Fishery (SCTF)

The SCTF targets saucer scallops (*Ylistrum balloti,* formerly *Amusium balloti*) using otter trawl nets on the South Coast of Western Australia from 115° 30′ E to 125° E east of Augusta to east of Israelite Bay. Key fishing areas include Bremer Bay (Doubtful Islands), the Recherche Archipelago and Israelite Bay. This fishery is managed through limited entry (with a restricted number of licences issued) and input controls with restrictions on the length and mesh size of nets used, and seasonal closures. The nets must have bycatch reduction devices incorporated, in the form of a grid (Kangas, Wilkin, Breheny, Cavalli, Grounds and Brown, State of the Fisheries Report 2020/21).



About the Artwork



1. Yonga (Kangaroo) Tracks - this track represents a yonga walking with feet slightly apart and the paws positioned in front with the tail balancing the yonga behind. This is a traditional food we still eat to this day today.
2. Seal and Shark - have their roles to play within the Wadarng Boodja (Sea Country) and are acknowledged and respected.
3. Koolbich (Islands) - Ancient granite domes surrounded by crystal clear water and pristine white sand beaches. Our connection our sea country extends out amongst the 105 koolbich that dot our coastline. Before sea level rise our ancestors accessed these culturally significant granite comes.
4. Mamang (Whale) and Tua wart Wiurnin (Dolphin) Dreaming Stories.
5. Weitj (Emu) and Seven Sisters - Stories from the Tuul (stars) dating back to the dreamtime.
6. Norn (snake) scales - the Norn comes from the dreamtime an is a creator of Creeks, Rivers and Lakes around Esperance.
7. Background patterns indicative of our cultural connection to Water, Land and Skies.
8. Sand Dunes - the fragile dune system is culturally significant to Esperance Nyungars.
9. Gathering / Meeting Circle / Community - women and men coming together in a meeting circle, together we are stronger. Together as a community we look after our lands and seas. As custodians we are obligated to hand down knowledge.
10. Men
11. Women
12. Waterhole - whether it is a traditionally made gnamma hole or natural water holes across the country, water is a life source and would always be maintained and cared for when travelling through country.
13. Footprints / Walking - walk with us, we love to share our knowledge. Come on a journey and hear about the oldest continuous living culture.